

This document provides pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a major, municipal permit. The discharge results from the operation of a 7.5 MGD wastewater treatment plant and includes a proposed future expansion of 10 MGD. This facility is located within the Commonwealth of Virginia but discharges to Maryland waters. As such, the proposed effluent limitations and special conditions contained within this permit will maintain the Water Quality Standards of both Maryland (COMAR26.08.02 et seq., effective 2 April 2012) and Virginia (9VAC25-260 et seq., effective 6 January 2011). Finally, this permit action authorizes treated effluent to be reclaimed and reused as set forth in the Water Reclamation and Reuse Regulations (9VAC25-740 et seq., effective 29 January 2014).

1. Facility Name and Mailing Address: Leesburg Water Pollution Control Facility
25 West Market Street
Leesburg, VA 20176
SIC Code: 4952 WWTP
Facility Location: 1391 East Market Street
Leesburg, VA 20176
County: Loudoun
Facility Contact Name: Brian Bailey / Plant Manager
Telephone Number: 703-737-7092
Facility Email Address: BBailey@leesburgva.gov
2. Permit No.: VA0092282
Expiration Date: 28 September 2013
Other VPDES Permits: VAR051427 – Stormwater General Permit
VAN010061 – General Watershed Permit for Total Nitrogen & Total Phosphorus Discharges
Other Permits: Registration Number 72260 – DEQ Air Permit
ID 3023341 – Petroleum Tank Registration (UST/AST)
VDACS Specialty Fertilizer License Number 59-44800-107
E2/E3/E4 Status: Not Applicable
3. Owner Name: Town of Leesburg
Owner Contact / Title: Amy Wyks / Director of Utilities
Telephone Number: 703-737-7119
Owner Email Address: AWyks@leesburgva.gov
4. Application Complete Date: 21 March 2013 – VPDES Application
6 December 2013 – Reclamation and Reuse Addendum
Permit Drafted By: Douglas Frasier
Date Drafted: 13 June 2013
10 July 2014
16 February 2015
24 March 2015
3 April 2015
Draft Permit Reviewed By: Alison Thompson
Date Reviewed: 1 July 2013
11 July 2014
WPM Review By: Bryant Thomas
Date Reviewed: 9 July 2013
5 August 2014
Public Comment Period: Start Date: 16 April 2015
End Date: 15 May 2015
5. Receiving Waters Information:
Receiving Stream Name: Potomac River
Stream Code: 1aPOT
Drainage Area at Outfall: 10,721 square miles
River Mile: 149.7
Stream Basin: Potomac River
Subbasin: Potomac River
Section: 02 – Washington Metropolitan Area
Stream Class: II
Special Standards: MDE – Use I-P
Waterbody ID: MDE Basin (02-14-02-02)

Receiving Waters Information: See **Attachment 1** for the Flow Frequency Determination.

7Q10 Low Flow:	627.4 MGD	7Q10 High Flow:	67,385.0 MGD
1Q10 Low Flow:	546.9 MGD	1Q10 High Flow:	137,021.7 MGD
30Q10 Low Flow:	740.8 MGD	30Q5 Flow:	27,063.9 MGD

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

<input checked="" type="checkbox"/> State Water Control Law	<input checked="" type="checkbox"/> 9VAC25-260 et seq. Virginia Water Quality Standards
<input checked="" type="checkbox"/> Clean Water Act	<input checked="" type="checkbox"/> COMAR26.08.02 et seq. Maryland Water Quality Standards
<input checked="" type="checkbox"/> VPDES Permit Regulation	<input checked="" type="checkbox"/> 9VAC25-401 et seq. <i>Dulles Area Watershed</i>
<input checked="" type="checkbox"/> EPA NPDES Regulation	<input checked="" type="checkbox"/> 9VAC25-820 et seq. <i>General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia</i>
<input type="checkbox"/> EPA Guidelines	<input checked="" type="checkbox"/> 9VAC25-740 et seq. <i>Water Reclamation and Reuse Regulation</i>
	<input checked="" type="checkbox"/> 9VAC25-32, Part IX <i>Virginia Pollution Abatement Permit Regulation, Biosolids Program</i>

7. Licensed Operator Requirements: Class I

8. Reliability Class: Class I

9. Facility / Permit Characterization:

<input type="checkbox"/> Private	<input checked="" type="checkbox"/> Effluent Limited	<input checked="" type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input checked="" type="checkbox"/> Whole Effluent Toxicity Testing	<input type="checkbox"/> Interim Limits in Permit
<input checked="" type="checkbox"/> Publicly Owned Treatment Works	<input checked="" type="checkbox"/> Pretreatment Program	<input type="checkbox"/> Interim Limits in Other Document
<input type="checkbox"/> eDMR Participant	<input checked="" type="checkbox"/> Reclamation and Reuse	<input checked="" type="checkbox"/> Total Maximum Daily Load

10. Wastewater Sources and Treatment Description:

The Leesburg Water Pollution Control Facility serves a population of approximately 51,000. The sources consist of domestic, restaurants and light commercial.

Preliminary Treatment

As the influent enters the plant, sodium hypochlorite may be added for odor control during the warmer periods of the year. The plant has two (2) mechanical barscreens, positioned in parallel channels. The flow then enters a wetwell which is then pumped to two (2) vortex grit chambers for removal of heavy grit. The screenings from the barscreen and the settled grit are washed, dewatered and collected in dumpsters for disposal at the landfill.

Primary Treatment

The screened and degritted wastewater flows by gravity to the primary clarifiers after passing through a splitter box. At this point in the operation, flows exceeding 12.5 MGD are diverted to either the emergency storage basins (two at 1.25 million gallons each) or the emergency storage tank (one at 1.6 million gallons). The facility has the ability to add ferric chloride and polymer prior to the primary clarifiers to enhance phosphorus removal. Primary sludge is routed to the gravity thickeners.

The primary effluent enters a splitter box prior to the bioreactors. Sodium hydroxide is added for alkalinity control. The facility also adds methanol at this point as a carbon source for enhanced nutrient removal (ENR).

Secondary Treatment

Biological nutrient removal (BNR) is accomplished via bioreactors, each consisting of four (4) zones of treatment; anoxic for denitrification, 2 swing zones and an aerobic zone for nitrification. Mixed liquor from the effluent is recycled to the influent of the bioreactor to further reduce nitrate levels. Bioreactor effluent flows to the secondary clarifiers. Ferric chloride and polymer are added prior to the clarifiers as needed for phosphorus removal enhancement. Return activated sludge (RAS) is sent to the reactor basins. Wasted activated sludge (WAS) is sent to the sludge handling building for further treatment.

Advanced Secondary Treatment

This portion of the treatment plant utilizes two (2) gravity sand filters to reduce the total suspended solids (TSS) content of the effluent. Sodium hypochlorite, polymer and sodium hydroxide are added as needed to prevent biological growth/disinfection, enhance capture of settleable solids and to clean the filter media, respectively. The sand filters are periodically backwashed as required with the backwash routed to the raw sewage pump station.

Disinfection

Sodium hypochlorite addition occurs at the sand filters for disinfection and biological growth control. Effluent is then pumped to the receiving stream via 3.5 miles of effluent pipe. The effluent is dechlorinated with sodium bisulfite and reaerated prior to discharge to the Potomac River.

See **Attachment 2** for a facility schematic/diagram.

TABLE 1 OUTFALL DESCRIPTION				
Number	Discharge Sources	Treatment	Design Flow(s)	Latitude / Longitude
001	Domestic Wastewater	See Section 10	7.5 MGD 10 MGD (expansion)	39° 06' 54" / 77° 30' 15"
676	Level 2 Reclaimed Water Internal Outfall	See Section 23	4.5 MGD	Not Applicable
See Attachment 3 for the Leesburg topographic map.				

11. Sludge Treatment and Disposal Methods:

Sludge treatment consists of gravity thickeners, anaerobic digestion, centrifuges, dewatering via belt press and then thermally dried. The biosolids product is a Class A, pathogen free, pelletized product. The facility possesses a Specialty Fertilizer License issued by the Virginia Department of Agriculture and Consumers Services (VDACS), permitting the distribution of the product as a soil amendment to individuals. See **Attachment 4** for product information.

The facility has the option of either land application via commercial truck spreaders or distribution to individuals in 25 or 50 pound bags. The annual amount generated is approximately 900 dry metric tons per the permit application.

The facility also receives residuals from the Kenneth B. Rollins Water Treatment Plant process (approximately 300 dry metric tons) and septage from the Town's sewer line cleaning for final treatment and disposal.

12. Discharges, Intakes and Monitoring Stations in Vicinity of the Discharge:

TABLE 2 DISCHARGES, INTAKES & MONITORING STATIONS			
ID Permit Number	Facility Name	Type	Receiving Stream
Station 01638500	USGS Gaging Station – Point of Rocks	Located upstream of the discharge	
Station POT1471	Maryland Department of Natural Resources – White's Ferry (ambient monitoring station)		
VA0092380	Elysian Heights STP	Municipal Discharge Individual Permit	Potomac River
VAR051114	Accurate Foreign Auto Parts	Stormwater Industrial General Permits	Potomac River, UT
VAR051771	Fairfax County – Newington Maintenance Facility		Long Branch Creek
PWSID 6059501	FCWA – J.J. Corbalis Water Treatment Plant	Intake	Potomac River
PWSID 6107300	Town of Leesburg Water Treatment Plant		

TABLE 2 (continued)			
ID Permit Number	Facility Name	Type	Receiving Stream
VA00922754	Loudoun Water WTP – begins operation in 2016	Discharge – Goose Creek Reservoir, UT Intake – Potomac River	
Station 01646500	USGS Gaging Station – Little Falls Pump Station	Located downstream of the discharge	
Station POT1183	Maryland Department of Natural Resources – Little Falls (ambient monitoring station)		

13. Material Storage:

TABLE 3 MATERIAL STORAGE		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Ferric chloride	Two (2) tanks 5,000 gallons each	Stored outside the Chemical Storage Building within a shared containment unit. The structure is equipped with a manually operated drain valve that is connected to the plant's drain system. Spill prevention, control and countermeasure (SPCC) in place.
Sodium hydroxide	Two (2) tanks 5,000 gallons each	Stored under roof inside the Chemical Storage Building and within a containment unit equipped with a manually operated drain valve that is connected to the plant's drain system. SPCC in place.
Sodium hypochlorite	Two (2) tanks 5,000 gallons each	Stored outside the Chemical Storage Building within a shared containment unit. The structure is equipped with a manually operated drain valve that is connected to the plant's drain system. SPCC in place.
Sodium Bisulfite	One (1) tank 5,000 gallons	Located inside the dechlorination building within a containment structure. The containment structure drains to the building sump which must be periodically pumped out. SPCC in place
Cationic Polymer	Three (3) units 2200 lbs. each	Stored inside the solids handling facility. IBC Totes (steel cage/polyethylene container), stored in a location that will allow any spills to be routed back to the headworks. SPCC in place.
Methanol	Two (2) tanks 3,000 gallons each	Stored outside within a containment unit next to the methanol pump building. The structure is equipped with a drain sump and manually operated drain valve that is connected to the plant's drain system.
Liquid Nitrogen	2,000 gallon vessel	Located outside of the solids handling building. SPCC in place.
Diesel Fuel	10,000 gallon tank	Located next to the emergency generator. Double-walled with a catch basin located at truck off loading area. SPCC in place.
Small quantities of acids	Sixteen (16) 1-gallon containers	Stored on spill containment platform. SPCC in place.

- 14. Site Inspection:** Performed by DEQ compliance staff on 4 February 2010. See **Attachment 5** for the inspection summary. The entire inspection report may be reviewed in DEQ's Enterprise Content Management system.

15. Receiving Stream Water Quality and Water Quality Standards:**a. Ambient Water Quality Data**

This facility discharges to the mainstem Potomac River (Montgomery County), which falls under Maryland's jurisdiction. The Maryland Department of Natural Resources (DNR) has two monitoring stations located in the mainstem Potomac River. Station POT1471 is located approximately 3.0 miles upstream of Outfall 001 near White's Ferry, whereas station POT1183 is located approximately 27.3 miles downstream of the outfall, at Little Falls below the dam.

b. 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

TABLE 4 INFORMATION OF DOWNSTREAM 303 (d) IMPAIRMENTS AND TMDLs					
Waterbody Name	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA
<i>Impairment Information in Maryland's 2012 Integrated Report</i>					
Potomac River	Fishing	PCBs	No Medium priority, not within 2 years	---	---
	Aquatic Life Wildlife	Total suspended solids	Yes 6/19/2012	NA	NA
<i>Information in the Chesapeake Bay TMDL</i>					
Chesapeake Bay	Aquatic Life	Total nitrogen	Chesapeake Bay TMDL 12/29/2010	365,467 lbs/yr TN	Edge of Stream (EOS) Loads
		Total phosphorus		21,928 lbs/yr TP	
		Total suspended solids		3,654,672 lbs/yr TSS	

This facility discharges directly to the Potomac River; located within the Chesapeake Bay watershed. The receiving stream has been addressed in the Chesapeake Bay TMDL, completed by the Environmental Protection Agency (EPA) on 29 December 2010. The TMDL addresses dissolved oxygen (D.O.), chlorophyll a and submerged aquatic vegetation (SAV) impairments in the main stem Chesapeake Bay and its tidal tributaries by establishing non-point source load allocations (LAs) and point-source waste load allocations (WLAs) for total nitrogen (TN), total phosphorus (TP) and total suspended solids (TSS) to meet applicable Virginia Water Quality Standards contained in 9VAC25-260-185. This facility is considered a Significant Chesapeake Bay wastewater discharge and has been assigned wasteload allocations as noted in Table 4 above.

Implementation of the Chesapeake Bay TMDL is currently accomplished in accordance with the Commonwealth of Virginia's Phase I Watershed Implementation Plan (WIP); approved by EPA on 29 December 2010. The approved WIP recognizes that the TMDL nutrient WLAs for Significant Chesapeake Bay wastewater dischargers are set in two regulations: 1) the Water Quality Management Planning Regulation (9VAC25-720); and 2) the *General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed of Virginia* (9VAC25-820). The WIP states that since TSS discharges from wastewater facilities represent an insignificant portion of the Bay's total sediment load, they may be considered aggregated and wastewater discharges with technology-based TSS limits are considered consistent with the TMDL.

40 CFR 122.44(d)(1)(vii)(B) requires permits to be written with effluent limits necessary to meet water quality standards and to be consistent with the assumptions and requirements of applicable WLAs. DEQ has provided coverage under the VPDES Nutrient General Permit (GP) for this facility under permit VAN010061. The requirements of the Nutrient GP currently in effect for this facility are consistent with the Chesapeake Bay TMDL. This individual permit includes TSS limits that are also consistent with the Chesapeake Bay TMDL and WIP. In addition, the individual permit addresses limitations for the protection of instream dissolved oxygen concentrations as detailed in Section 19 of this Fact Sheet. The proposed effluent limits within this individual permit are consistent with the Chesapeake Bay TMDL and will not cause impairment or observed violation of the standards for D.O., chlorophyll a or SAV as required by 9VAC25-260-185.

The full planning statement is found in **Attachment 6**.

c. Receiving Stream Water Quality Criteria

The mainstem of the Potomac River is Maryland waters. Outfall 001 discharges at a point 30 feet east of the Maryland political boundary; thus, the discharge has the potential to affect Maryland waters. Title 26, Subtitle 08 of the Code of Maryland Regulations (Maryland Water Quality Standards), effective 2 April 2012, has been reviewed and the proposed limitations herein comply with these regulations.

The receiving stream, per the Maryland Water Quality Criteria, has been designated as Use I-P water. The use goals include water contact recreation, protection of nontidal warmwater aquatic life and public water supply. The dissolved oxygen (D.O.) may not be less than 5.0 mg/L at any time and maintain a pH of 6.5 – 8.5 standard units (S.U.).

Attachments 7 and 8 provide the Virginia water quality criteria applicable to the receiving stream for the 7.5 MGD and 10 MGD facilities, respectively.

pH and Temperature for Ammonia Criteria:

Maryland and Virginia Water Quality Criteria for ammonia are dependent on instream pH and temperature. Since the effluent may have an impact on the instream values, the effluent pH and temperature values must also be considered when determining the ammonia criteria for the receiving stream. Ambient pH and temperature data were available from the Maryland Department of Natural Resources' Monitoring Station POT1471, upstream of the outfall (see Section 15.a.). Data utilized for determination of the ammonia criteria are presented in **Attachment 9**. Effluent pH data reported during the last permit term was used in the determination of the ammonia criterion. See **Attachment 10** for the 90 percentile pH derived values. A default temperature value of 25° C and an assumed value of 15° C for summer and winter, respectively, were utilized since effluent temperature data was not readily available.

Hardness Dependent Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream and/or effluent hardness values (expressed as mg/L calcium carbonate). An average hardness of 137 mg/L for the receiving stream was ascertained during the 2008 issuance using data from the USGS monitoring station at Rock of Points Maryland (Station Number 1638500). It is staff's best professional judgement that this value is still valid and appropriate for use.

The average hardness for this facility's discharge is 167 mg/L as CaCO₃ per Form 2A, Part D of the permit application.

Bacteria Criteria:

The Virginia Water Quality Standards at 9VAC25-260-170.A state that the following criteria shall apply to protect primary recreational uses in surface waters:

E. coli bacteria per 100 mL of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean ¹
Freshwater <i>E. coli</i> (N/100 mL)	126

¹For a minimum of four weekly samples taken during any calendar month

The Maryland Water Quality Criteria Specific to Designated Uses (Code of Maryland Regulations 26.08.02.03-3.A) states that sewage discharges shall be disinfected to achieve the following criteria:

E. coli and enterococci bacteria per 100 mL of water for all areas shall be as follows:

	Geometric Mean ¹	Single Sample Maximum
Freshwater <i>E. coli</i> (N/100 mL)	126	235
Freshwater enterococci	33	61

¹For two or more samples taken during any calendar month

d. Receiving Stream Special Standards

Chapter 9VAC25-401-10 et seq. of the State Water Control Law was established to regulate the discharge from sewage treatment plants within the Dulles Area Watershed, which is located upstream of several major public water supply intakes serving the Washington, D.C. metropolitan area. This Policy prescribes specific effluent limitations for sewage treatment works discharging within this watershed in order to protect vital public water supply intakes. However, this regulation does not restrict or affect sewage treatment plants located in the Dulles Area Watershed that do not discharge to surface waters within the boundaries of this watershed.

The Leesburg Water Pollution Control Facility is sited within the boundaries of the watershed; however, the discharge point is located at the Potomac River; outside the Dulles Area Watershed. Therefore, this Policy and the respective effluent limitations are not applicable to this facility.

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e. Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on 10 May 2013 for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened species were identified within a 3 mile radius of the discharge: Wood turtle (*Glyptemys insculpta*); Upland sandpiper (*Bartramia longicauda*); Loggerhead shrike (*Lanius ludovicianus*); Henslow's sparrow (*Ammodramus henslowii*); Green Floater (*Lasmigona subviridis*); and Migrant loggerhead shrike (*Lanius ludovicianus migrans*). The limits proposed in this draft permit are protective of both the Maryland and the Virginia Water Quality Standards; therefore, protecting the threatened species found near the discharge.

In addition, the Virginia Department of Game and Inland Fisheries (DGIF) and Virginia Department of Conservation and Recreation (DCR) were coordinated during this reissuance per the procedures as set forth in the 2007 Memorandum of Understanding (MOU) concerning Threatened and Endangered Species Screening for VPDES Permits. The purpose of this coordination is to obtain input from other agencies during the permitting process to ascertain potential adverse impacts to threatened and endangered species and/or their habitats.

Any comments from these agencies are located in Section 27 of this Fact Sheet.

16. **Antidegradation (9VAC25-260-30):**

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 based on the fact that the Potomac River has an impaired use for fishing and aquatic life and wildlife (**Attachment 6**). Proposed permit limits have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which are applicable to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. **Effluent Screening, Wasteload Allocation and Effluent Limitation Development:**

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. In the case of ammonia evaluations, limits are needed if the 97th percentile of the thirty-day average effluent concentration values is greater than the chronic WLA. Effluent limitations are then calculated on the most limiting WLA, the required sampling frequency and statistical characteristics of the effluent data.

a. Effluent Screening

Effluent data obtained from the permit application and October 2008 – March 2013 Discharge Monitoring Reports (DMRs) has been reviewed and determined to be suitable for evaluation.

Please see **Attachment 10** for a summary of effluent data.

b. Mixing Zones and Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:

- WLA = Wasteload allocation
- C_o = In-stream water quality criteria
- Q_e = Design flow
- Q_s = Critical receiving stream flow
(1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; 30Q10 for ammonia criteria; and 30Q5 for non-carcinogen human health criteria)
- f = Decimal fraction of critical flow
- C_s = Mean background concentration of parameter in the receiving stream.

The Water Quality Standards contain two distinct mixing zone requirements. The first requirement is general in nature and requires the "use of mixing zone concepts in evaluating permit limits for acute and chronic standards in 9VAC25-260-140.B.". The second requirement is specific and establishes special restrictions for regulatory mixing zones "established by the Board".

The Department of Environmental Quality uses a simplified mixing model to estimate the amount of mixing of a discharge with the receiving stream within specified acute and chronic exposure periods. The simplified model contains the following assumptions and approximations:

- The effluent enters the stream from the bank, either via a pipe, channel or ditch.
- The effluent velocity isn't significantly greater (no more than 1 - 2 ft/sec greater) than the stream velocity.
- The receiving stream is much wider than its depth (width at least ten times the depth).
- Diffusive mixing in the longitudinal direction (lengthwise) is insignificant compared with advective transport (flow).
- Complete vertical mixing occurs instantaneously at the discharge point. This is assumed since the stream depth is much smaller than the stream width.
- Lateral mixing (across the width) is a linear function of distance downstream.
- The effluent is neutrally buoyant (e.g. the effluent discharge temperature and salinity are not significantly different from the stream's ambient temperature and salinity).
- Complete mix is determined as the point downstream where the variation in concentration is 20% or less across the width and depth of the stream.
- The velocity of passing and drifting organisms is assumed equal to the stream velocity.

As stated above, the model assumes that the discharge enters the receiving stream at the shoreline; however, the discharge point for this facility is actually submerged, extending approximately 30 feet from the stream bank into the Potomac River. It is staff's best professional judgement that the mixing model would suffice in this situation even though the first assumption is not satisfied. In this scenario, the model's output would provide conservative estimates in which to base effluent limitations and would protect the use designations for the receiving waters.

If it is suitably demonstrated that a reasonable potential for lethality or chronic impacts within the physical mixing area doesn't exist, then the basic complete mix equation, with 100% of the applicable stream flow, is appropriate. If the mixing analysis determines there is a potential for lethality or chronic impacts within the physical mixing area, then the proportion of stream flow that has mixed with the effluent over the allowed exposure time is used in the basic complete mix equation. As such, the wasteload allocation equation is modified to account for the decimal fraction of critical flow (f).

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as N is likely present since this is a wastewater treatment facility treating domestic sewage and total residual chlorine may be present since chlorine is utilized for disinfection. As such, the mixing analyses for the 7.5 MGD and 10 MGD facilities are provided in **Attachments 11** and **12**, respectively.

c. Effluent Limitations and Monitoring, Outfall 001 – Toxic Pollutants

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1). Ammonia as N / TKN:

Staff reevaluated pH and temperature and has concluded it is not significantly different than what was used previously to derive ammonia criteria. Current DEQ guidance recommends utilizing a sole data point of 9.0 mg/L to ensure the evaluation adequately addresses the potential for ammonia to be present in discharges containing domestic sewage.

The toxicity of ammonia is dependent on the pH of the effluent and/or receiving stream. Ammonia can exist as both "ionized ammonia" (NH_4) and "un-ionized ammonia" (NH_3). Research has shown that the un-ionized ammonia is the fraction that is toxic to aquatic life while the ionized ammonia has been found to have little or no toxic effect. Furthermore, it has been demonstrated that the un-ionized fraction increases correspondingly with rising pH values; thus, increasing potential toxicity and the basis for the above calculated ammonia limits.

It is generally accepted that total Kjeldahl nitrogen (TKN) consists of approximately 60% ammonia in raw wastewater. As the waste stream is treated, the ammonia component of TKN is converted to Nitrate (NO_3) and Nitrite (NO_2). It is estimated that a facility achieving a TKN limit of 3.0 mg/L essentially removes ammonia from the waste stream, resulting in a 'self-sustaining' quality effluent that protects against ammonia toxicity.

It is staff's best professional judgement that a TKN monthly average limit of 3.0 mg/L is still protective given the aforementioned and will be carried forward in this reissuance for both flow tiers. The weekly average limit, based on a multiplier of 1.5 times the monthly average, will be 4.5 mg/L.

2). Total Residual Chlorine:

The facility utilized ultraviolet (UV) disinfection prior to relocating the discharge point to the Potomac River. Due to the distance between the final treatment unit and the discharge point, the facility opted to switch to chlorination in order to reduce the potential regrowth of bacteria prior to discharge. Chlorination occurs pre- and post-sand filtration to reduce biological growth in the filters and for disinfection of the final effluent, respectively.

The facility did not install a chlorine contact tank during the change in disinfection methods but does achieve the required 30 minute retention time while the effluent is being pumped to the outfall, a distance of 3.5 miles. Due to the nonexistent chlorine contact tank, this permit will only require that chlorine be monitored after dechlorination. In addition, the proposed bacteria limitations will ensure that adequate disinfection is achieved and maintained.

Staff calculated WLAs for total residual chlorine (TRC) using current critical flows and the mixing allowance. In accordance with current DEQ guidance, staff used a default data point of 20 mg/L and the calculated WLAs to derive limits. A monthly average of 0.010 mg/L and a weekly average of 0.012 mg/L for the 7.5 MGD plant and a monthly average of 0.010 mg/L and a weekly average of 0.011 mg/L for the 10 MGD facility are proposed. See **Attachment 13** and **Attachment 14** for each limit derivation, respectively.

3). Metals/Organics:

Review of Form 2A, Part D of the permit application package did not indicate the presence of listed metals in appreciable amounts (i.e. all amounts found below the target values listed in **Attachments 7** and **8**); therefore, limit determinations are not warranted during this reissuance.

d. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), carbonaceous-biochemical oxygen demand-5 day (cBOD_5), total suspended solids (TSS), total Kjeldahl nitrogen (TKN) and pH limitations are proposed.

It is staff's practice to equate the total suspended solids limits with the cBOD₅ limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the State of Maryland Water Quality Criteria.

E. coli limitations are in accordance with the Virginia Water Quality Standards 9VAC25-260-170 and are equivalent to the State of Maryland Water Quality Standards COMAR 26.08.02.03-3.A.

e. Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries. Only concentration limits are now found in the individual VPDES permit when the facility installs nutrient removal technology. The basis for the concentration limits is 9VAC25-40 – *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* which requires new or expanding discharges with design flows of ≥ 0.04 MGD to treat for total nitrogen (TN) and total phosphorus (TP) to either biological nutrient removal (BNR) levels achieving a TN of 8 mg/L and TP of 1.0 mg/L or state of art (SOA) levels achieving a TN of 3.0 mg/L and TP of 0.3 mg/L.

This facility has also obtained coverage under 9VAC25-820 – *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit. This facility has coverage under this General Permit; the permit number is VAN010061. Total Nitrogen Annual Loads and Total Phosphorus Annual Loads from this facility are found in 9VAC25-720 – *Water Quality Management Plan Regulation* which sets forth TN and TP maximum wasteload allocations for facilities designated as significant discharges, i.e., those with design flows of ≥ 0.5 MGD above the fall line and ≥ 0.1 MGD below the fall line.

Monitoring for nitrates + nitrites, total Kjeldahl nitrogen, total nitrogen and total phosphorus are included in this permit. The monitoring is needed to protect the Water Quality Standards of the Chesapeake Bay. Monitoring frequencies are set at the frequencies set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date calculations, for total nitrogen and total phosphorus are included in this individual permit. The annual averages are based on 9VAC25-40 and GM07-2008.

For the 7.5 MGD flow tier, concentration limitations of 8.0 mg/L TN annual average are needed based on 9VAC25-40-70.A.(4) and Guidance Memo No. 07-2008, Amendment No. 2. The limit is based in part on point source grant and operation and maintenance agreement contract #440-S-98-07. See **Attachment 15** for the grant agreement summary. The concentration limit of 2.0 mg/L TP annual average was carried forward from the Maryland permit (MD0066184) during the issuance and will be carried forward with this reissuance at the 7.5 MGD flow tier.

For the 10 MGD flow tier, concentration limits of 4.0 mg/L TN and 0.3 mg/L TP annual averages are needed based on 9VAC25-720-50.C.

The loading limitations will be governed by the general permit referenced above.

f. Effluent Limitations and Monitoring Summary

The effluent limitations are presented in Sections 19.a. and 19.b. of this Fact Sheet. Limitations were established for carbonaceous-biochemical oxygen demand-5 day, total suspended solids, total Kjeldahl nitrogen, pH, dissolved oxygen, total residual chlorine, *E. coli*, total nitrogen and total phosphorus.

The limit for total suspended solids is based on best professional judgement.

The mass loading (kg/d) for BOD₅ and TSS monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then by a conversion factor of 3.785.

The mass loading (lb/d) for TKN monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then by a conversion factor of 8.345.

Sample Type and Frequency are in accordance with the recommendations in the current VPDES Permit Manual. The exception would be the total residual chlorine sampling frequency, which is less than that found in the current manual. See Section 25 for further explanation.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for cBOD and TSS. The limits in this permit are water quality-based effluent limits and result in greater than 85% removal.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

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19a. Effluent Limitations/Monitoring Requirements:

Design flow is 7.5 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the issuance of the CTO for the 10 MGD facility or the expiration date; whichever occurs first.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		NA		NA	NL	Continuous	TIRE
pH	3	NA		NA		6.5 S.U.	8.5 S.U.	1/D	Grab
cBOD ₅	2,3,4	10 mg/L	280 kg/day	15 mg/L	420 kg/day	NA	NA	1/D	24H-C
Total Suspended Solids (TSS)	2,7	10 mg/L	280 kg/day	15 mg/L	420 kg/day	NA	NA	1/D	24H-C
Dissolved Oxygen (DO)	3,4	NA		NA		5.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2,3,4	3.0 mg/L	190 lb/day	4.5 mg/L	280 lb/day	NA	NA	1/D	24H-C
<i>E. coli</i> (Geometric Mean) ^(a)	3,4	126 n/100 mL		NA		NA	NA	1/W	Grab
Total Residual Chlorine (after dechlorination)	3,4	0.010 mg/L		0.012 mg/L		NA	NA	4/D	Grab
Nitrate+Nitrite, as N	5,6,7	NL mg/L		NA		NA	NA	1/W	24H-C
Total Nitrogen ^(b)	5,6,7	NL mg/L		NA		NA	NA	1/W	Calculated
Total Nitrogen – Year to Date ^(c)	5,6,7	NL mg/L		NA		NA	NA	1/M	Calculated
Total Nitrogen – Calendar Year ^(c)	5,6,7	8.0 mg/L		NA		NA	NA	1/Y	Calculated
Total Phosphorus	5,6,7	NL mg/L		NA		NA	NA	1/W	24H-C
Total Phosphorus – Year to Date ^(c)	5,6,7	NL mg/L		NA		NA	NA	1/M	Calculated
Total Phosphorus – Calendar Year ^(c)	5,6,7	2.0 mg/L		NA		NA	NA	1/Y	Calculated
Chronic Toxicity – <i>C. dubia</i> ^(d)		NA		NA		NA	NL (TU _c)	1/Y	24H-C
Chronic Toxicity – <i>P. promelas</i> ^(d)		NA		NA		NA	NL (TU _c)	1/Y	24H-C

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. Maryland Water Quality Standards (COMAR 26.08.02 et seq.)
4. Virginia Water Quality Standards (9VAC25-260 et seq.)
5. 9VAC25-40 (Nutrient Regulation)
6. 9VAC25-820 (Watershed General Permit)
7. Chesapeake Bay TMDL

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

TIRE = Totalizing, indicating and recording equipment.

4/D = Four times every day.

1/D = Once every day.

1/W = Once every week.

1/M = Once every month.

1/Y = Once every calendar year.

24H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 24-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of twenty-four (24) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum twenty-four (24) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

^(a) Samples shall be collected between the hours of 10 A.M. and 4 P.M.

^(b) Total Nitrogen = Sum of TKN plus Nitrate+Nitrite.

^(c) See Section 20.a. for the calculation of the Nutrient Calculations.

^(d) See Section 20.b. for Whole Effluent Toxicity Requirements.

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19b. Effluent Limitations/Monitoring Requirements:

Design flow is 10 MGD.

Effective Dates: During the period beginning with the issuance of the CTO for the 10 MGD facility and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		NA		NA	NL	Continuous	TIRE
pH	3	NA		NA		6.5 S.U.	8.5 S.U.	1/D	Grab
cBOD ₅	2,3,4	10 mg/L	380 kg/day	15 mg/L	570 kg/day	NA	NA	1/D	24H-C
Total Suspended Solids (TSS)	2,7	10 mg/L	380 kg/day	15 mg/L	570 kg/day	NA	NA	1/D	24H-C
Dissolved Oxygen (DO)	3,4	NA		NA		5.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2,3,4	3.0 mg/L	250 lb/day	4.5 mg/L	380 lb/day	NA	NA	1/D	24H-C
<i>E. coli</i> (Geometric Mean) ^(a)	3,4	126 n/100 mL		NA		NA	NA	1/W	Grab
Total Residual Chlorine (after dechlorination)	3,4	0.010 mg/L		0.011 mg/L		NA	NA	4/D	Grab
Nitrate+Nitrite, as N	5,6,7	NL mg/L		NA		NA	NA	1/W	24H-C
Total Nitrogen ^(b)	5,6,7	NL mg/L		NA		NA	NA	1/W	Calculated
Total Nitrogen – Year to Date ^(c)	5,6,7	NL mg/L		NA		NA	NA	1/M	Calculated
Total Nitrogen – Calendar Year ^{(c) (d)}	5,6,7	4.0 mg/L		NA		NA	NA	1/Y	Calculated
Total Phosphorus	5,6,7	NL mg/L		NA		NA	NA	1/W	24H-C
Total Phosphorus – Year to Date ^(c)	5,6,7	NL mg/L		NA		NA	NA	1/M	Calculated
Total Phosphorus – Calendar Year ^{(c) (d)}	5,6,7	0.3 mg/L		NA		NA	NA	1/Y	Calculated
Acute Toxicity – <i>C. dubia</i> (%) ^(e)		NA		NA		NA	NL (NOAEC)	1/Q	24H-C
Acute Toxicity – <i>P. promelas</i> (%) ^(e)		NA		NA		NA	NL (NOAEC)	1/Q	24 H-C
Chronic Toxicity – <i>C. dubia</i> ^(e)		NA		NA		NA	NL (TU _c)	1/Q	24H-C
Chronic Toxicity – <i>P. promelas</i> ^(e)		NA		NA		NA	NL (TU _c)	1/Q	24H-C

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. Maryland Water Quality Standards (COMAR 26.08.02 et seq.)
4. Virginia Water Quality Standards (9VAC25-260 et seq.)
5. 9VAC25-40 (Nutrient Regulation)
6. 9VAC25-820 (Watershed General Permit)
7. Chesapeake Bay TMDL

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

TIRE = Totalizing, indicating and recording equipment.

4/D = Four times every day.

1/D = Once every day.

1/W = Once every week.

1/M = Once every month.

1/Q = Once every calendar quarter.

1/Y = Once every year.

24H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 24-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of twenty-four (24) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum twenty-four (24) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

^(a) Samples shall be collected between the hours of 10 A.M. and 4 P.M.

^(b) Total Nitrogen = Sum of TKN plus Nitrate+Nitrite.

^(c) See Section 20.a. for the calculation of the Nutrient Calculations.

^(d) Calendar year annual averages are effective January 1st of the year after issuance of the CTO for the 10 MGD facility.

^(e) See Section 20.b. for Whole Effluent Toxicity Requirements.

The quarterly monitoring periods shall be January through March, April through June, July through September, and October through December. The DMR shall be submitted no later than the 10th day of the month following the monitoring period.

After completion of four (4) quarterly samples, the permittee may request a reduction in monitoring frequency to once per calendar year and removal of the testing requirements for acute toxicity if test results indicate that the effluent exhibited no toxicity for the test species.

20. Other Permit Requirements:**a. Part I.B. of the permit contains quantification levels and compliance reporting instructions**

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an instream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the Nitrogen and Phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

b. Part I.C. of the permit details the requirements of a Pretreatment Program

The VPDES Permit Regulation at 9VAC25-31-210 requires monitoring and 9VAC25-31-220.D requires all discharges to protect water quality. The VPDES Permit Regulation at 9VAC25-31-730 through 900 and the Federal Pretreatment Regulation at 40 CFR Part 403 requires POTWs with a design flow of > 5.0 MGD and/or receiving pollutants from Industrial Users (IUs) which pass through or interfere with the operation of the publically owned treatment works (POTW) or are otherwise subject to pretreatment standards to develop a pretreatment program.

The Leesburg Water Pollution Control Facility is a POTW with a current design capacity of 7.5 MGD. The pretreatment program conditions in the proposed permit reissuance require that a survey of all industrial users (IUs) be conducted. The permittee may elect to develop an alternative plan that allows continuous evaluation of the industrial community within their jurisdiction.

c. Part I.D. of the permit details the requirements for Whole Effluent Toxicity Program

The VPDES Permit Regulation at 9VAC25-31-210 requires monitoring and 9VAC25-31-220.I, requires limitations in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. A whole effluent toxicity (WET) Program is imposed for municipal facilities with a design rate > 1.0 MGD or those determined by the Board based on effluent variability, compliance history, IWC and receiving stream characteristics.

The Leesburg WPCF has a current design flow of 7.5 MGD; thus, requires the continuation of a WET Program to ensure that no toxics in toxic amounts are discharged from this wastewater treatment plant.

Previous WET results have indicated that the effluent exhibits no chronic toxicity to the test species. See **Attachment 16** for a summary of the past test results.

Attachment 17 details the statistical evaluation of the previous WET results at the 7.5 MGD design flow; indicating that no limit is warranted.

Attachment 18 and **Attachment 19** document the calculated endpoints that will be carried forward with this reissuance for the 7.5 MGD facility and the 10 MGD facility, respectively.

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21. Other Special Conditions:

- a. 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.
- b. Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200.B.1 and B.2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.
- c. O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. The permittee shall maintain a current Operations and Maintenance (O&M) Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- d. CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.
- e. Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200.C, and Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class I operator.
- f. Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of I.
- g. E3/E4. 9VAC25-40-70.B. authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.
- h. Nutrient Reopener. 9VAC25-40-70.A. authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390.A. authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.
- i. Unusual or Extraordinary Discharge Notification. Due to the proximity of major, regional drinking water supply intakes downstream of this discharge, the permittee shall notify the Fairfax County Water Authority, the Maryland Department of the Environment and the Interstate Commission on the Potomac River Basin within six (6) hours of an unauthorized, unusual or extraordinary discharge. The information provided shall contain the same reporting requirements found in Part II.H. of this permit.
- j. PCB Pollutant Minimization Plan. This special condition requires the permittee, upon notification from DEQ-NRO, to submit a Pollutant Minimization Plan (PMP) to identify known and unknown sources of low-level PCBs in the effluent. This special condition details the contents of the PMP and also requires an annual report on progress to identify sources.
- k. TMDL Reopener. Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan or other wasteload allocation prepared under section 303 of the Act.

22. Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Permit Section Part III. Part III of the permit contains conditions, requirements and restrictions authorizing the reuse of Level 2 reclaimed water. This reuse project will supply treated effluent to a new, yet to be constructed, combined cycle power plant for cooling, makeup and service water. A supply agreement between the Town and power plant officials was finalized during the drafting of this permit. The permittee completed all elements of the *Water Reclamation and Reuse Addendum to an Application for a VPDES or VPA Permit (Application Addendum)* with the exception of a final Reclaimed Water Management Plan (RCWMP) due to unknown specifics regarding total water needs of the power plant and possible, pending permit conditions, requirements and restrictions. Part III.B.1. of the permit will require submission of a complete RCWMP to DEQ-NRO for approval at least 120 days prior to commencing reuse operations. Per the aforementioned agreement and discussions with plant representatives, the wastewater treatment plant will commence delivery of reclaimed water to the power plant circa June 2016 to support startup and commissioning. The power plant must enter commercial operations (i.e. begin providing power to the grid) by June 2017.

It should be noted that the State Water Control Board adopted amendments to the Water Reclamation and Reuse Regulations on 14 March 2013; eventually becoming effective on 29 January 2014. One of the provisions included in those amendments prohibits the reduction of a discharge from a VPDES permitted treatment works due to water reclamation and reuse that would cause a significant adverse impact to other beneficial uses (9VAC25-740-50.B.7.); particularly those uses dependent upon the discharge. An evaluation to assess the potential of a diversion that may result in significant adverse impacts (also known as a cumulative impact analysis) must be considered for all new or expanding water reclamation and reuse projects; especially those that may have the potential to reduce the discharge of a VPDES permitted wastewater treatment facility to surface waters. The purpose of the cumulative impact analysis (CIA) is to ensure that downstream beneficial uses are protected due to a discharge diversion/consumptive loss. The Town of Leesburg submitted the *Application Addendum* on 3 December 2013 as part of the VPDES permit reissuance application. The effective regulations as of that date did not require a facility to complete a CIA at the time of application submittal.

However, as stated earlier, the State Water Control Board adopted the amendments in March 2013 with the intent to promote reuse while ensuring the protection of beneficial uses of the receiving stream. Since this reissuance will occur after the effective date of the amended regulations, the authorization, conditions and requirements for reuse included in this permit will comply with the current Reclamation and Reuse Regulations, effective 29 January 2014 and additionally ensuring that the beneficial uses of state waters are maintained pursuant to the VPDES Regulations at 9VAC25-31-50.A.2.

The Town of Leesburg discharges to the Potomac River; upstream of water purveyors (Fairfax Water, Loudoun Water, the Washington Suburban Sanitary Commission and the Washington Aqueduct Division of the Corps of Engineers) that collectively supply drinking water to approximately 4.3 million people within the Washington metropolitan area. The Interstate Commission on the Potomac River Basin (ICPRB) was established in 1940 to aid Potomac basin states and the federal government to enhance, protect and conserve the water resources of the Potomac River and its tributaries through regional and interstate cooperation. ICPRB facilitates cooperation and communication concerning water supply issues; developing tools to evaluate the impacts of changes in consumptive use, land use and climate change on the water supply within the basin. Modeling simulations are an important aspect of the planning required to ensure that adequate water supply (i.e. flow within the Potomac) exists to meet the demands of the population. ICPRB has developed and utilized the Potomac Reservoir and River Simulation Model (PRRISM), which simulates storage volumes and releases from the interconnected system of reservoirs within the Washington, D. C. metropolitan area (WMA). Because of this model's ability to simulate storage and water supply releases within this interconnected system, DEQ staff requested ICPRB to perform simulations for this project as part of the CIA for this project.

It was DEQ staff's best professional judgement that a CIA was warranted to ascertain potential impacts to the public water supply downstream of the discharge. As stated above, the water purveyor partnership owns and operates the system of reservoirs; conducting releases as needed for recreation, non-recreation and water supply augmentation. The Town of Leesburg does not belong or contribute to this partnership. The Reuse and Reclamation Regulations prohibit projects that would cause significant adverse impacts to beneficial uses of state waters. There is no definition for 'significant' found within this regulation. Therefore, it was DEQ staff's best professional judgement that the term 'significant', in terms of this project, would equate to no net change in the operation of this water supply system; i.e., no additional reservoir releases intended for public water supply would occur during critical river flow periods. Furthermore, VPDES Permit Regulation, 9VAC25-31-50.C states that no permit may be issued when the imposition of conditions cannot ensure compliance with the applicable water quality requirements (including designated uses) of all affected states. As stated in Sections 5 and 15 of this Fact Sheet, this facility discharges to Maryland waters. The designated uses for this section of the Potomac River, found at COMAR26.08.02.02 B.(1), includes public water supply.

Town staff agreed to collaborate with the CIA analysis on 8 May 2014.

The Town requested authorization to reuse essentially 100% of the discharge flow year round, ultimately up to the current design flow of 7.5 MGD. Review of reported flow data indicates that the facility is currently discharging, on a monthly average, 4.5 MGD. Per Town staff, projected future discharge flows by the end of this five (5) year permit term have been estimated between 5.5 and 6.5 MGD, monthly average; dependent on development/population growth within the service area. DEQ first requested that ICPRB model a simulation at the design flow of 7.5 MGD, assuming 100% diversion, projecting for years 2018 and 2040. However, this exercise would not reflect the actual current flow of 4.5 MGD at the wastewater treatment plant (maximum diversion amount possible). Therefore, a second scenario was requested that included flow tiers of 4.5 and 7.5 MGD with 100% of the discharge being diverted to the power plant at each respective flow rate for the same two years. There will be no return flow to the wastewater treatment plant once the power plant uses the reclaimed water (i.e. 100% consumptive loss).

Initial modeling results based on 100% reuse indicated full diversion of the discharge would impact the downstream beneficial uses; increasing the number of days/amount of releases from the WMA water supply storage reservoirs during critical river flow periods. A series of model simulations were conducted using different Potomac River flow thresholds below which the diversion of the Leesburg WPCF discharge would not be authorized. The results of these simulations predicted that at a flow threshold of 1400 cubic feet per second (cfs), this project has no net effect upon minimum system storage and water-supply reservoir releases, even during the worst drought periods (1930-1931 & 1965-1966). Therefore, the permit would state that at river flows below a threshold of 1400 cfs, diversion of treated effluent for reuse would not be authorized. Subsequent model simulations were also completed to ascertain if further diversions could be allowed under lower river flow conditions; as discussions with power plant representatives revealed that reduced (half) diversions during critical months would allow them to use the plant at half capacity; thus, maintaining the ability to generate power. Ultimately, seasonal diversion restrictions were developed. In short, the Town will be able to divert 100% of treated effluent, up to 4.5 MGD, when provisional average river flows, as recorded at Point of Rocks, are greater than 1400 cfs; 2.25 MGD may be diverted when recorded river flows are between 1400 and 805 cfs; and no diversion for periods when the river flows are below 805 cfs. There are provisions included when river flows are between 1400 and 805 cfs for the months of September, October and November and when the water supply reservoirs are 85% or greater in regards to storage capacity which will allow the Town to divert 100% of treated effluent.

It should be noted that the modeling simulations conducted by ICPRB staff were based on 24-hour average daily river flows. The results from these daily simulations with flow-cutoff thresholds indicated that there would be times when the Town's diversion to the power plant would be prohibited for short periods, producing 'on/off' scenarios. For example, during some summer months of non-drought years, daily average flows might dip below a diversion-cutoff threshold for one day; then rise above the threshold before falling below it again for a brief period. Diversion cutoffs based on daily fluctuations around the thresholds would prohibit GEP from being able to effectively operate the proposed power plant. However, analysis of the simulation results suggested that there may be no change in the project's effect upon simulated water-supply storage and release volumes if diversions were cut off based on seven-day average river flows. Consequently, DEQ staff concluded that, even though the model simulations do not directly support diversion cutoff thresholds based on a moving seven-day average flow, the use of such an average would adequately protect the CO-OP water supply storage.

Part III.B.3 details the requirements and diversion restrictions necessary to protect downstream uses.

However, since the restrictions were not anticipated to this extent during initial permitting actions, DEQ staff, in discussions with ICPRB and stakeholders, agreed, in principal, to provide the Town and power plant staff time to secure any necessary supplemental water supplies to ensure continued operation of the power plant as intended. The permittee will be allowed to divert 100% of treated effluent, not to exceed 4.5 MGD, for use at the power plant during this permit term with no restrictions in place. DEQ and ICPRB believe any impacts to the water supply system during this five year period would be minimal, if at all, during this relatively short time period given the power plant startup and full commission dates of 2016 and 2017, respectively. The temporary reprieve during this permit term allows the project to continue on schedule while providing time to explore alternative, supplemental water supplies. All diversion restrictions become effective in 2020.

In general, establishing alternative water supplies to the power plant does not fall within the purview of this permit. However, the special condition found in Part III.B.3.c. recognizes that power plant officials may opt to contribute to or install upstream storage as a measure to supplement river flows during low flow periods while effluent diversion restrictions are in place. If this strategy is pursued in lieu of a supplemental water supply, the permittee may develop a plan for review and approval to increase diversions above the established restriction volumes so long as downstream beneficial uses are protected. Should the permittee choose to pursue this option, a plan will be required to be developed and submitted for DEQ approval at least 180 days prior to the permit expiration date in 2020 that ensures that downstream beneficial uses are protected.

Summary of the model results may be found in **Attachment 20**. Part III.B.3. of this permit details the Town's requirements to track the moving seven-day average stream flows in the Potomac River as recorded at Point of Rocks gage station, minus reservoir releases intended to augment water supply, and the corresponding restrictions placed on the flow diversions to the power plant. These restrictions are intended to protect the public water supply (i.e. designated use) downstream of this facility; satisfying the requirements set forth in 9VAC25-740-50.B.7.

Furthermore, the restrictions reflect the State Water Control Law in which public water supply uses for human consumption shall be considered the highest priority (§ 62.1-10). This is also consistent with the Articles as set forth in the U.S. Congress 1970 amendment for the Compact creating the ICPRB.

The permittee will be required to monitor the USGS 01638500 Potomac River at Point of Rocks gage station for daily provisional mean stream flows. The Town will also be required to communicate with ICPRB in regards to any releases from the supply reservoirs and storage capacities in order to comply with the diversion restrictions found in Part III.B.3. of the permit.

Part III.B.4. of this permit will set forth the requirement of developing a standard operating procedure (SOP) in regards to monitoring the above gage station and required diversion restrictions. This may be incorporated into the Reclaimed Water Management Plan that is to be submitted prior to commencing reuse operations. DEQ staff intends to continue working closely with ICPRB and the water purveyors by providing these aforementioned documents for review and comment.

- 24. Permit Section Part IV.** Part IV of the permit contains conditions and requirements for biosolids production and distribution. The VPDES Permit Regulation 9VAC25-31-420 through 729 establishes the standards for the use or disposal of biosolids; specifically land application and surface disposal, promulgated under 40 CFR Part 503. Standards consist of general requirements, pollutant limits, management practices and operational standards. Furthermore, VPA Regulation 9VAC25-32-303 through 685 sets forth the requirements necessary to distribute and market exceptional quality biosolids.

The Leesburg WPCF is authorized to distribute and market exceptional quality biosolids. The Leesburg WPCF is licensed by the Virginia Department of Agricultural and Consumer Services (VDACS) to distribute the pelletized Class A Biosolids to the general public. The facility is regulated under the Specialty Fertilizer License Number 59-44800-107. Biosolids that are sold or given away in a bag or other container for application to the land must be labeled or an information sheet made available, which states the percentage of each plant nutrient available. A copy of the label and product brochure is included in **Attachment 4**.

The permit sets forth the parameters to be monitored, monitoring frequencies, sampling types, the Biosolids Management Plan and reporting requirements.

25. Changes to the Permit from the Previously Issued Permit:

a. Special Conditions:

- Polychlorinated biphenyls monitoring was removed since the facility completed this requirement during the previous permit term.
- The PCB Pollutant Minimization Plan was included with this reissuance.
- The biosolids special condition was updated to reflect the new regulations found in 9VAC25-32 et seq. pertaining to exceptional quality material; effective 1 September 2013.
- The Discharge Monitoring Report Submission to the Maryland Department of the Environment (MDE) was removed per MDE staff recommendations.
- The Unusual or Extraordinary Discharge Notification was clarified during this reissuance and also requires the Town to provide the same information as required in Part II.H. of this permit

b. Monitoring and Effluent Limitations:

- Total residual chlorine limitations were reduced from a monthly average of 0.011 mg/L to 0.010 mg/L and a weekly average of 0.014 mg/L to 0.012 mg/L at the 7.5 MGD flow tier. At the 10 MGD flow tier the monthly average of 0.011 mg/L was reduced to 0.010 mg/L while the weekly average was reduced from 0.013 mg/L to 0.011 mg/L. These statistically derived limitations are partially based on the proposed increased monitoring frequency. As the length of the confidence interval for the sample mean increases, the degree of confidence increases; thus, narrowing the range of expected sample values.
- The sampling frequency for total residual chlorine after dechlorination was changed from 1/D to 4/D. See Section 25 for further clarification.
- The sampling frequency for bacteria was reduced from 1/D to 1/W to reflect the current VPDES Permit Manual recommendations.

- The loading calculations were rounded to two (2) significant figures to reflect current agency guidance.
- Acute toxicity testing for one year after issuance of the CTO for the 10 MGD flow tier was included with the whole effluent toxicity testing requirements. This reflects current agency guidance concerning whole effluent toxicity testing and facility expansions.

c. Other:

- Part III was included with this reissuance. This sets forth the conditions and requirements for reclamation and reuse of the treated effluent.
- Part IV was included as this contains the conditions and requirements for sludge production and monitoring and the production and distribution of exceptional quality biosolids.

26. Variances/Alternate Limits or Conditions:

During the 2008 issuance, the sampling frequency for total residual chlorine was set a once per day per the agency guidance at that time. During this permit term, agency guidance was updated and the sampling frequency for this pollutant of concern at this facility's design flows was increased to twelve times per day. The permittee requested that a compromised frequency of four times a day be proposed for this reissuance.

This facility is unique in that the effluent pipe is 3.5 miles long; serving as the retention time necessary for proper disinfection (i.e. chlorine contact tank). The dechlorination unit is computerized in that it utilizes a chlorine residual analyzer which dictates the amount of sodium bisulfite necessary to neutralize the chlorine. Staff personnel visit the outfall four times a day to analyze and record the final residual levels of the effluent. There are alarms in place to alert, via auto dialer, staff personnel 24 hours/day.

Staff concurred that four times a day would be sufficient given the operational procedures in place at the dechlorination unit and the logistics that would be required to meet the suggested twelve times per day frequency. Review of effluent data indicated that no exceedences occurred during the last permit term.

27. Public Notice Information:

First Public Notice Date: 15 April 2015

Second Public Notice Date: 22 April 2015

Public Notice Information is required by 9VAC25-31-280.B. All pertinent information is on file and may be inspected and copied by contacting the: DEQ Northern Regional Office; 13901 Crown Court, Woodbridge, VA 22193; Telephone No. 703-583-3873; Douglas.Frasier@deq.virginia.gov. See **Attachment 21** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

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28. Additional Comments:

Previous Board Action(s):

None.

Staff Comments:

Reissuance was delayed due to the Pollutant Minimization Plan language being developed and finalized and the decision to submit the *Water Reclamation and Reuse Addendum* by the permittee after finalizing an agreement with power plant officials.

There were also discussions/negotiations between DEQ staff and the permittee regarding the total residual chlorine sampling frequency. Guidance suggested 12/D, Town proposed 4/D as a compromise; staff, including DEQ Central Office staff, concurred.

The DEQ Water Supply staff, in conjunction with ICPRB staff, conducted a cumulative impact analysis due to potential downstream use impacts diverting nearly 100% of the effluent flow from the Potomac River based on the reclamation and reuse project submitted by the Town. Several model simulations, discussions and comments (see below) further delayed the reissuance of this permit.

State Agency Comments:

Please see **Attachment 22** for DCR and DGIF comments.

Federal Agency Comments:

The Environmental Protection Agency limited their review to the TMDL requirements and had no objections.

Public Comment:

Public comments were received from the Maryland Department of the Environment and Fairfax Water. Please refer to **Attachment 23** for correspondence. The reporting requirement recommendations from Maryland Department of the Environment were incorporated into the final version of the permit prior to signature.

Owner Comments:

Several communiqués; conference calls; and meetings were exchanged/held during this permit reissuance discussing the reuse and reclamation conditions and restrictions proposed in the draft permit.

Attachment 24 provides correspondences related to the Town of Leesburg, Fairfax Water and ICPRB comments pertaining to Part III (Reclamation & Reuse) that were received during the drafting of this permit. Respective DEQ responses may also be found in this attachment.

Fact Sheet Attachments

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VA0092282
2015 Reissuance

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Attachment 23	Public Comments
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ATTACHMENT 1

Flow Frequency Determination

MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

13901 Crown Court

Woodbridge, VA 22193

TO: VPDES Issuance File VA0092282

DATE: 24 March 2008

FROM: Douglas Frasier

SUBJECT: Flow Frequency Determination of VPDES Permit No. VA0092282
Leesburg Water Pollution Control Facility

The Town of Leesburg WPCF discharges to the Potomac River near Leesburg, Virginia. Stream flow frequencies are required at this site for use in the development of effluent limitations for this VPDES permit.

There is an USGS Gaging Station at Point of Rocks, Maryland (#01638500), upstream from the Outfall 001. The referenced gaging station has a drainage area of 9,651 square miles. The NRO Water Resource Planners ascertained that the drainage area above the Outfall for Leesburg WPCF is 10,721 square miles.

The flow frequencies shall be determined using values at the USGS Gaging Station at Point of Rocks, Maryland and adjusting them by proportional drainage areas.

Potomac River at Point of Rocks, MD (#01638500)

Drainage area	=	9,651 sq. mi.
1Q10	=	761.7 cfs
7Q10	=	873.9 cfs
30Q5	=	37,695.8 cfs
30Q10	=	1,031.9 cfs
High flow 30Q10	=	44,036.6 cfs
High flow 1Q10	=	190,850 cfs
High flow 7Q10	=	93,856.9 cfs

Potomac River at Leesburg WPCF at Outfall 001

Drainage area	=	10,721 sq. mi.	
1Q10	=	846.2 cfs	546.9 MGD*
7Q10	=	970.8 cfs	627.4 MGD*
30Q5	=	41,875.1 cfs	27,063.9 MGD*
30Q10	=	1,146.3 cfs	740.8 MGD*
High flow 30Q10	=	48,918.9 cfs	31,616.3 MGD*
High flow 1Q10	=	212,009.4 cfs	137,021.7 MGD*
High flow 7Q10	=	104,262.8 cfs	67,385.0 MGD*

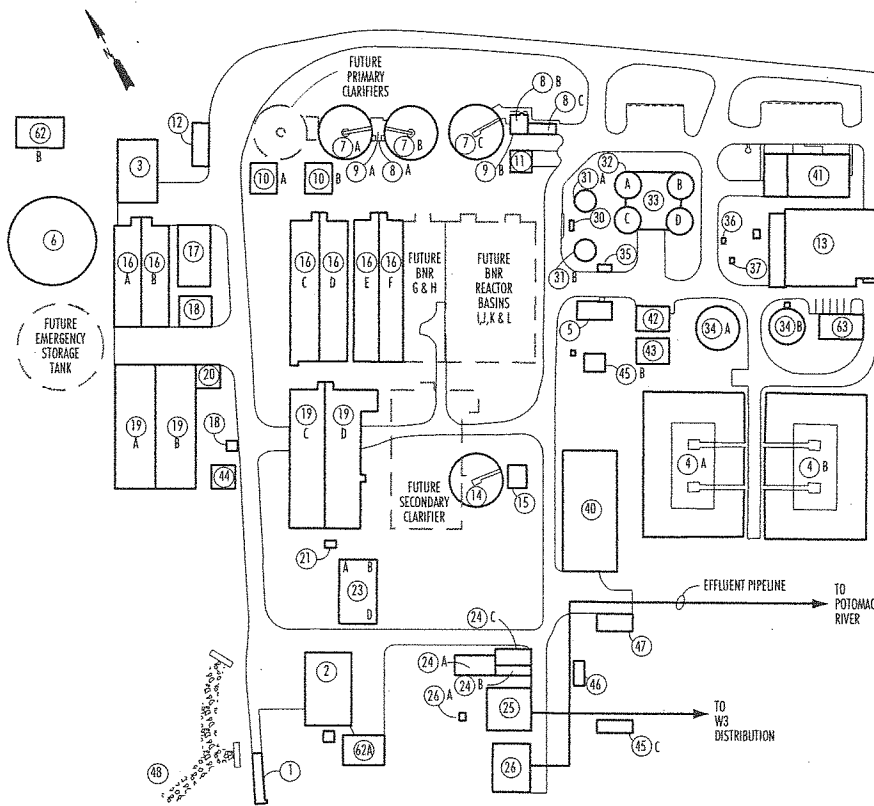
*Conversion to MGD = (cfs flow measurement) x (0.6463)

The high flow months are December - May

ATTACHMENT 2

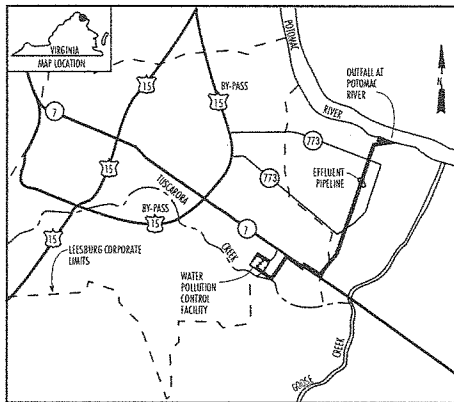
Facility Schematic/Diagram

Water Pollution Control Facility

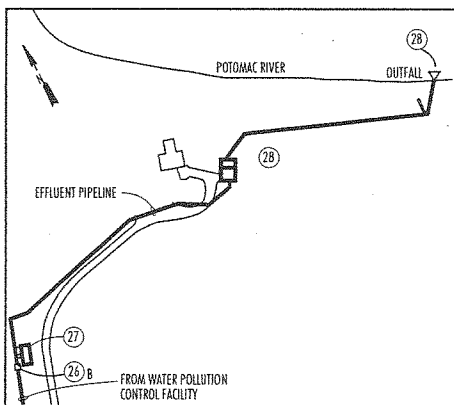


UNIT IDENTIFICATION

1. RECEIVING STATION
2. INFLUENT PUMPING STATION
3. PISTA GRIT BUILDING
4. EMERGENCY STORAGE BASINS A AND B
5. EMERGENCY STORAGE BASIN BLOWER BUILDING
6. EMERGENCY STORAGE TANK
7. PRIMARY CLARIFIERS A, B, AND C
8. PRIMARY SCUM PITS A AND B SCUM HANDLING STATION C
9. PRIMARY PUMP STATIONS A AND B
- 10A. BNR FLOW SPLITTER
- 10B. DIURNAL EQUALIZATION FLOW SPLITTER
11. PRIMARY SCUM SCREEN BUILDING
12. METHANOL BUILDING
13. SOLIDS HANDLING BUILDING
14. RECYCLE EQUALIZATION BASIN
15. RECYCLE EQUALIZATION PUMP STATION
16. BIOREACTORS A, B, C, D, E, AND F
17. PROCESS BLOWER BUILDING
18. RAS/WAS PUMP STATION—METERING CHAMBER
19. SECONDARY CLARIFIERS A, B, C, AND D
20. SECONDARY SCUM PUMP STATION AND PIT
21. SAND FILTER FLOW SPLITTER
23. SAND FILTER BUILDING
24. CHEMICAL FEED BUILDING A
FERRIC CHLORIDE CONTAINMENT STRUCTURE B
SODIUM HYPOCHLORITE CONTAINMENT STRUCTURE C
25. W3 PUMPING STATION
26. EFFLUENT PS AND METER CHAMBERS A AND B
27. DECHLORINATION BUILDING AND
SODIUM BISULFITE STRUCTURE
28. POTOMAC RIVER OUTFALL
30. GRAVITY THICKENER SPLITTER
31. GRAVITY THICKENERS A AND B
32. PRIMARY DIGESTERS A, B, C, AND D
33. DIGESTER CONTROL BUILDING
34. SLUDGE STORAGE TANKS A AND B
35. SLUDGE LOADING STATION
36. WASTE GAS CONTROL CHAMBER
37. WASTE GAS BURNER
40. COVERED STORAGE PAD
41. ADMINISTRATIVE BUILDING
42. MAINTENANCE SHOP
43. MAINTENANCE STORAGE BUILDING
44. GROUNDS MAINTENANCE BUILDING
45. ELECTRICAL SUBSTATION B AND C
46. GENERATOR SET
47. GENERATOR SET FUEL STORAGE TANK
48. STORMWATER CONTAINMENT BASIN AND OUTFALL
- 62A. INFLUENT PUMP STATION ODOR CONTROL BIOFILTER
- 62B. PRIMARY AND GRIT ODOR CONTROL BIOFILTER
63. ODOR CONTROL RTO



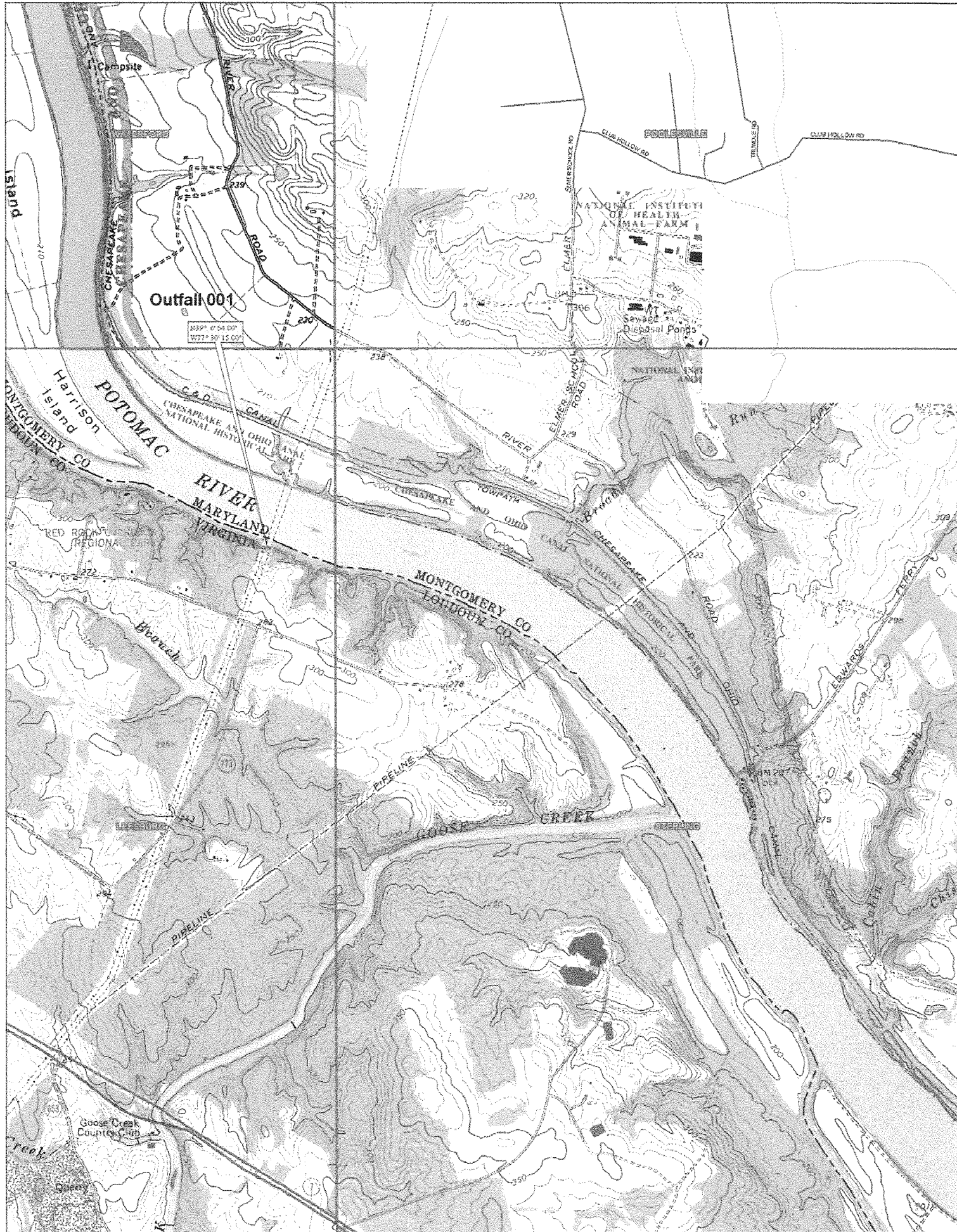
Vicinity Map



Outfall at Potomac River

ATTACHMENT 3

Topographic Map



DeLORME

© 2002 DeLorme, 3-D TopoQuads®. Data copyright of content owner.
www.delorme.com



ATTACHMENT 4

Class A Biosolids Product Information

Tuscarora Landscaper's TLC choice



SOIL AMENDMENT PRODUCT

- ✓ Slow Release
- ✓ Rich In Iron For Greener Grass, Shrubs & Plants
- ✓ Adds Organic Matter
- ✓ Non-burning

Net Weight 50 lbs.

Produced by
Town of Leesburg in Virginia
Utilities Department
Water Pollution Control Division

Tuscarora Landscaper's Choice

Naturally Occurring Nutrient Levels

Total Nitrogen (N)	6.00%
1% water soluble organic nitrogen	
5% water insoluble nitrogen	
Available Phosphate (P ₂ O ₅)	3.00%
Phosphorus (P)	3.00%
Calcium (Ca)	2.00%
Iron (Fe)	1.00%
Sulfur (S)	0.75%
Potassium (K)	0.50%
Magnesium (Mg)	0.40%
Sodium (Na)	0.05%
Zinc (Zn)	0.02%
Manganese (Mn)	0.01%

Recommended Uses:

Tuscarora Landscaper's Choice is an organic by-product converted into a valuable all natural product. It is an excellent soil amendment for lawns, trees, shrubs, and flowers. It provides a valuable source of nutrients which are essential to plant growth and provides organic matter which enhances soil structure and quality. Tuscarora Landscaper's Choice can be applied through any spreader used for granular material. The use of Tuscarora Landscaper's Choice soil amendment will support the ongoing efforts in the protection, restoration and preservation of the Potomac River and Chesapeake Bay watersheds.

Established Lawns

For most lawns in the Mid Atlantic area using cool-season grasses (fescue, bluegrass, ryegrass), three applications per year are recommended (spring, late summer, fall). Apply at a rate of 50 lbs. per 5,000 sq. ft.

New Lawns

Apply to soil at a rate of 50 lbs. per 1,500 sq. ft. before seeding. Cover the entire area and rake into the top 2 inches of soil.

Trees and Shrubs

Single Plantings: Use 5 lbs. of product for each inch of tree trunk diameter measured 4 ft. from the ground or 2 cups of product per shrub.

New Shrub Beds: Prior to planting, apply 5 lbs. of product per 100 sq. ft. to the shrub bed and mix it into the soil.

Established Shrubs: Apply 1 to 2 cups of product around the base of shrubs and mix it into the soil. Best results are obtained in the spring.

Flowers and Vegetables

Annuals: Uniformly apply 3 lbs. of product per 100 sq. ft. of the seed bed prior to planting and work into the soil. Reapply when flower buds form with 2 lbs. per 100 sq. ft.

Perennials: Apply 2 lbs. of product per 100 sq. ft. in spring and again after blooming to strengthen plants for the following season.

Vegetables: Apply 5 lbs. per 100 sq. ft. prior to rototilling your garden.

Application Information:

2 1/2 cups of Tuscarora Landscaper's Choice equals 1 lb. A large coffee can (approximately 2 1/2 lb. size) holds 5 lbs. of product. The bulk density is approximately 45 lbs. per cubic foot. The pellets are approximately 1.2 mm in diameter (6/100 - 0.009 inches).

Tuscarora Landscaper's Choice is an organic biosolids product meeting the U.S. Environmental Protection Agency's 'Exceptional Quality' standards for beneficial use. Apply this product in accordance with label directions. Do not apply in or near any public or private water supplies including wells, streams, or lakes. Do not apply to flooded or frozen land. Store unused product away from children and pets in a cool, dry area.

If you have questions regarding this product, please call the Leesburg Water Pollution Control Facility at 703-737-7100, M-F, 8:00 AM - 5:00 PM.

ATTACHMENT 5

Site Inspection Report Summary

SUMMARY for Current Inspection

Comments:

- This is the first Virginia DEQ technical inspection at this facility. Previous inspections were conducted by Maryland's Department of the Environment (MDE).
- Each tank, basin, digester, etc is drained, cleaned, and inspected once per year.
- The facility has an extensive odor control system in place (completed 2008).
- The facility had some TKN readings that were above permit limits in January 2010. Staff altered the swing zones in the BNR reactors and TKN levels have returned to normal.
- The facility has had several digester overflows. The most recent, in January 2010, resulted in some digested sludge entering the stormwater collection and conveyance system and may have reached state waters at Tuscarora Creek. Each overflow was corrected as soon as it was discovered and corrective actions implemented. These events were reported to DEQ as required.

Recommendations for action:

- The facility analyzes Dissolved Oxygen three times daily and records the minimum DO for each day on the liquid treatment analyses sheet submitted to the DEQ with the Discharge Monitoring Report (DMR) as supporting documentation. However, the average of these daily minimum DO readings is reported on the DMR as the minimum DO. The lowest single reading for the month must be reported as the minimum DO.
- Once completed, provide the dates of the most current certification of the cross connection devices.

Problems identified at last inspection: February 2, 2010

Corrected

Not Corrected

1. **The facility analyzes Dissolved Oxygen three times daily and records the minimum DO for each day on the liquid treatment analyses sheet submitted to the DEQ with the Discharge Monitoring Report (DMR) as supporting documentation. However, the average of these daily minimum DO readings is reported on the DMR as the minimum DO. The lowest single reading for the month must be reported as the minimum DO.**
2. **Once completed, provide the dates of the most current certification of the cross connection devices.**
3. **The Automatic Temperature Compensation (ATC) on the DO and pH meters are not recorded and probably overdue. Instruments should be checked against an NIST traceable thermometer as soon as possible.**

☒☐☒☐☒☐**CURRENT INSPECTION JUNE 2012 - SUMMARY****Comments:**

- **This facility is remarkably clean and well maintained.**
- **The lab inspection report dated March 10, 2010 noted deficiencies for E. coli, CBOD5, and TSS procedures. DEQ received notification that these deficiencies had been corrected. DEQ no longer evaluates these lab procedures.**
- **A digester overflow in February 2012 resulted in a spill of digested sludge to the ground via the roof drains on the digester building. The spill was cleaned up and waste material returned to plant by 9:00pm. This incident was reported to DEQ within 24 hours via telephone and followed up with a written report.**

REQUEST for CORRECTIVE ACTION:

- **None at this time**

ATTACHMENT 6

Planning Statement

To: Douglas Frasier
From: Jennifer Carlson

Date: 9 April 2013
Subject: Planning Statement for Town of Leesburg Water Pollution Control Facility
Permit Number: VA0092282

Information for Outfall 001:

Discharge Type: major, municipal
Discharge Flow: 7.5 MGD with an expansion at 10 MGD
Receiving Stream: Potomac River
Latitude / Longitude: 39° 06' 54" / 77° 30' 15"
Rivermile: 149.7
Streamcode: 1aPOT
Waterbody: MD-02140202
Water Quality Standards: Designated Use I-P (Water Contact Recreation, Protection of Aquatic Life, and Public Water Supply)

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

This facility discharges to the mainstem Potomac River (Montgomery County), which falls under Maryland's jurisdiction. The Maryland Department of Natural Resources (DNR) has two monitoring stations located in the mainstem Potomac River. Station POT1471 is located approximately 3.0 miles upstream of Outfall 001 near White's Ferry, whereas station POT1183 is location approximately 27.3 miles downstream of the outfall, at Little Falls below the dam.

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

Yes.

Table A. 303(d) Impairment and TMDL information for the receiving stream segment

Waterbody Name	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in Maryland's 2012 Integrated Report						
Potomac River	Fishing	PCBs	No	---	---	Medium priority, not within 2 years
	Aquatic Life and Wildlife	Total Suspended Solids	Yes 6/19/2012	N/A	N/A	---

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

Yes.

Table B. Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Information in the Chesapeake Bay TMDL							
Chesapeake Bay	Aquatic Life	Total Nitrogen	---	Chesapeake Bay TMDL 12/29/2010	365,467 lbs/yr TN	Edge of Stream (EOS) Loads	N/A
		Total Phosphorus			21,928 lbs/yr TP		
		Total Suspended Solids			3,654,672 lbs/yr TSS		

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

The tidal Potomac River is listed with a PCB impairment and a TMDL has been developed to address this impairment. The Tidal Potomac PCB TMDL developed a PCB load at the Potomac River fall line. Since the Town of Leesburg WPCF is located upstream of the fall line, this facility conducted PCB monitoring during the last permit cycle in support of the PCB TMDL. The PCB monitoring data will be evaluated, and source reductions through pollution minimization plans may be needed.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

The public water supply intake for the Town of Leesburg WTP is located upstream within 5 miles of Outfall 001.

ATTACHMENT 7

Water Quality Criteria / Wasteload Allocation Analysis
for
7.5 MGD Facility

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Leesburg WPCF

Permit No.: VA0092282

Receiving Stream: Potomac River

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	137 mg/L
90% Temperature (Annual) =	28.6 deg C
90% Temperature (Wet season) =	11.8 deg C
90% Maximum pH =	8.4 SU
10% Maximum pH =	7.7 SU
Tier Designation (1 or 2) =	1
Public Water Supply (PWS) Y/N? =	y
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	y

Stream Flows

1Q10 (Annual) =	546.9 MGD
7Q10 (Annual) =	627.4 MGD
30Q10 (Annual) =	740.8 MGD
1Q10 (Wet season) =	137022 MGD
30Q10 (Wet season) =	31616 MGD
30Q5 =	27064 MGD
Harmonic Mean =	MGD

Mixing Information

Annual - 1Q10 Mix =	0.28 %
- 7Q10 Mix =	15.15 %
- 30Q10 Mix =	17.57 %
Wet Season - 1Q10 Mix =	42.95 %
- 30Q10 Mix =	100 %

Effluent Information

Mean Hardness (as CaCO3) =	167 mg/L
90% Temp (Annual) =	25 deg C
90% Temp (Wet season) =	15 deg C
90% Maximum pH =	7 SU
10% Maximum pH =	6.7 SU
Discharge Flow =	7.5 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	6.7E+02	9.9E+02	--	--	2.4E+06	3.6E+06	--	--	--	--	--	--	--	--	--	--	2.4E+06	3.6E+06
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	2.2E+04	3.4E+04	--	--	--	--	--	--	--	--	--	--	2.2E+04	3.4E+04
Acrylonitrile ^C	0	--	--	5.1E-01	2.5E+00	--	--	5.1E-01	2.5E+00	--	--	--	--	--	--	--	--	--	--	5.1E-01	2.5E+00
Aldrin ^C	0	3.0E+00	--	4.9E-04	5.0E-04	3.6E+00	--	4.9E-04	5.0E-04	--	--	--	--	--	--	--	--	3.6E+00	--	4.9E-04	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	3.36E+01	9.44E-01	--	--	4.05E+01	1.73E+01	--	--	--	--	--	--	--	--	--	--	4.05E+01	1.73E+01	--	--
Ammonia-N (mg/l) (High Flow)	0	3.89E+00	1.30E+00	--	--	3.05E+04	5.46E+03	--	--	--	--	--	--	--	--	--	--	3.05E+04	5.46E+03	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	3.0E+07	1.4E+08	--	--	--	--	--	--	--	--	--	--	3.0E+07	1.4E+08
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	2.0E+04	2.3E+06	--	--	--	--	--	--	--	--	--	--	2.0E+04	2.3E+06
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	--	4.1E+02	2.1E+03	3.6E+04	--	--	--	--	--	--	--	--	--	4.1E+02	2.1E+03	3.6E+04	--
Barium	0	--	--	2.0E+03	--	--	--	7.2E+06	--	--	--	--	--	--	--	--	--	--	--	7.2E+06	--
Benzene ^C	0	--	--	2.2E+01	5.1E+02	--	--	2.2E+01	5.1E+02	--	--	--	--	--	--	--	--	--	--	2.2E+01	5.1E+02
Benzidine ^C	0	--	--	8.6E-04	2.0E-03	--	--	8.6E-04	2.0E-03	--	--	--	--	--	--	--	--	--	--	8.6E-04	2.0E-03
Benzo (a) anthracene ^C	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (b) fluoranthene ^C	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (k) fluoranthene ^C	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (a) pyrene ^C	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Bis2-Chloroethyl Ether ^C	0	--	--	3.0E-01	5.3E+00	--	--	3.0E-01	5.3E+00	--	--	--	--	--	--	--	--	--	--	3.0E-01	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	5.1E+06	2.3E+08	--	--	--	--	--	--	--	--	--	--	5.1E+06	2.3E+08
Bis 2-Ethylhexyl Phthalate ^C	0	--	--	1.2E+01	2.2E+01	--	--	1.2E+01	2.2E+01	--	--	--	--	--	--	--	--	--	--	1.2E+01	2.2E+01
Bromoform ^C	0	--	--	4.3E+01	1.4E+03	--	--	4.3E+01	1.4E+03	--	--	--	--	--	--	--	--	--	--	4.3E+01	1.4E+03
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	5.4E+06	6.9E+06	--	--	--	--	--	--	--	--	--	--	5.4E+06	6.9E+06
Cadmium	0	6.8E+00	1.5E+00	5.0E+00	--	8.1E+00	2.0E+01	1.8E+04	--	--	--	--	--	--	--	--	--	8.1E+00	2.0E+01	1.8E+04	--
Carbon Tetrachloride ^C	0	--	--	2.3E+00	1.6E+01	--	--	2.3E+00	1.6E+01	--	--	--	--	--	--	--	--	--	--	2.3E+00	1.6E+01
Chlordane ^C	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	2.9E+00	5.9E-02	8.0E-03	8.1E-03	--	--	--	--	--	--	--	--	2.9E+00	5.9E-02	8.0E-03	8.1E-03
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	1.0E+06	3.1E+06	9.0E+08	--	--	--	--	--	--	--	--	--	1.0E+06	3.1E+06	9.0E+08	--
TRC	0	1.9E+01	1.1E+01	--	--	2.3E+01	1.5E+02	--	--	--	--	--	--	--	--	--	--	2.3E+01	1.5E+02	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	4.7E+05	5.8E+06	--	--	--	--	--	--	--	--	--	--	4.7E+05	5.8E+06

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane ^C	0	--	--	4.0E+00	1.3E+02	--	--	4.0E+00	1.3E+02	--	--	--	--	--	--	--	--	--	--	4.0E+00	1.3E+02
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	1.2E+06	4.0E+07	--	--	--	--	--	--	--	--	--	--	1.2E+06	4.0E+07
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	3.6E+06	5.8E+06	--	--	--	--	--	--	--	--	--	--	3.6E+06	5.8E+06
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	2.9E+05	5.4E+05	--	--	--	--	--	--	--	--	--	--	2.9E+05	5.4E+05
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	1.0E-01	5.6E-01	--	--	--	--	--	--	--	--	--	--	1.0E-01	5.6E-01	--	--
Chromium III	0	8.5E+02	9.7E+01	--	--	1.0E+03	1.3E+03	--	--	--	--	--	--	--	--	--	--	1.0E+03	1.3E+03	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.9E+01	1.5E+02	--	--	--	--	--	--	--	--	--	--	1.9E+01	1.5E+02	--	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	3.6E+05	--	--	--	--	--	--	--	--	--	--	--	3.6E+05	--
Chrysene ^C	0	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	--	--	--	--	--	--	--	--	3.8E-03	1.8E-02
Copper	0	2.1E+01	1.2E+01	1.3E+03	--	2.5E+01	1.6E+02	4.7E+06	--	--	--	--	--	--	--	--	--	2.5E+01	1.6E+02	4.7E+06	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	2.6E+01	7.1E+01	5.1E+05	5.8E+07	--	--	--	--	--	--	--	--	2.6E+01	7.1E+01	5.1E+05	5.8E+07
DDD ^C	0	--	--	3.1E-03	3.1E-03	--	--	3.1E-03	3.1E-03	--	--	--	--	--	--	--	--	--	--	3.1E-03	3.1E-03
DDE ^C	0	--	--	2.2E-03	2.2E-03	--	--	2.2E-03	2.2E-03	--	--	--	--	--	--	--	--	--	--	2.2E-03	2.2E-03
DDT ^C	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.3E+00	1.4E-02	2.2E-03	2.2E-03	--	--	--	--	--	--	--	--	1.3E+00	1.4E-02	2.2E-03	2.2E-03
Demeton	0	--	1.0E-01	--	--	--	1.4E+00	--	--	--	--	--	--	--	--	--	--	--	1.4E+00	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	2.0E-01	2.3E+00	--	--	--	--	--	--	--	--	--	--	2.0E-01	2.3E+00	--	--
Dibenz(a,h)anthracene ^C	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	1.5E+06	4.7E+06	--	--	--	--	--	--	--	--	--	--	1.5E+06	4.7E+06
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	1.2E+06	3.5E+06	--	--	--	--	--	--	--	--	--	--	1.2E+06	3.5E+06
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	2.3E+05	6.9E+05	--	--	--	--	--	--	--	--	--	--	2.3E+05	6.9E+05
3,3-Dichlorobenzidine ^C	0	--	--	2.1E-01	2.8E-01	--	--	2.1E-01	2.8E-01	--	--	--	--	--	--	--	--	--	--	2.1E-01	2.8E-01
Dichlorobromomethane ^C	0	--	--	5.5E+00	1.7E+02	--	--	5.5E+00	1.7E+02	--	--	--	--	--	--	--	--	--	--	5.5E+00	1.7E+02
1,2-Dichloroethane ^C	0	--	--	3.8E+00	3.7E+02	--	--	3.8E+00	3.7E+02	--	--	--	--	--	--	--	--	--	--	3.8E+00	3.7E+02
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	1.2E+06	2.6E+07	--	--	--	--	--	--	--	--	--	--	1.2E+06	2.6E+07
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	5.1E+05	3.6E+07	--	--	--	--	--	--	--	--	--	--	5.1E+05	3.6E+07
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	2.8E+05	1.0E+06	--	--	--	--	--	--	--	--	--	--	2.8E+05	1.0E+06
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	3.6E+05	--	--	--	--	--	--	--	--	--	--	--	3.6E+05	--
1,2-Dichloropropane ^C	0	--	--	5.0E+00	1.5E+02	--	--	5.0E+00	1.5E+02	--	--	--	--	--	--	--	--	--	--	5.0E+00	1.5E+02
1,3-Dichloropropene ^C	0	--	--	3.4E+00	2.1E+02	--	--	3.4E+00	2.1E+02	--	--	--	--	--	--	--	--	--	--	3.4E+00	2.1E+02
Dieldrin ^C	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	2.9E-01	7.7E-01	5.2E-04	5.4E-04	--	--	--	--	--	--	--	--	2.9E-01	7.7E-01	5.2E-04	5.4E-04
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	6.1E+07	1.6E+08	--	--	--	--	--	--	--	--	--	--	6.1E+07	1.6E+08
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	1.4E+06	3.1E+06	--	--	--	--	--	--	--	--	--	--	1.4E+06	3.1E+06
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	9.7E+08	4.0E+09	--	--	--	--	--	--	--	--	--	--	9.7E+08	4.0E+09
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	7.2E+06	1.6E+07	--	--	--	--	--	--	--	--	--	--	7.2E+06	1.6E+07
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	2.5E+05	1.9E+07	--	--	--	--	--	--	--	--	--	--	2.5E+05	1.9E+07
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	4.7E+04	1.0E+06	--	--	--	--	--	--	--	--	--	--	4.7E+04	1.0E+06
2,4-Dinitrotoluene ^C	0	--	--	1.1E+00	3.4E+01	--	--	1.1E+00	3.4E+01	--	--	--	--	--	--	--	--	--	--	1.1E+00	3.4E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	1.8E-04	1.8E-04	--	--	--	--	--	--	--	--	--	--	1.8E-04	1.8E-04
1,2-Diphenylhydrazine ^C	0	--	--	3.6E-01	2.0E+00	--	--	3.6E-01	2.0E+00	--	--	--	--	--	--	--	--	--	--	3.6E-01	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.6E-01	7.7E-01	2.2E+05	3.2E+05	--	--	--	--	--	--	--	--	2.6E-01	7.7E-01	2.2E+05	3.2E+05
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.6E-01	7.7E-01	2.2E+05	3.2E+05	--	--	--	--	--	--	--	--	2.6E-01	7.7E-01	2.2E+05	3.2E+05
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.6E-01	7.7E-01	--	--	--	--	--	--	--	--	--	--	2.6E-01	7.7E-01	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	2.2E+05	3.2E+05	--	--	--	--	--	--	--	--	--	--	2.2E+05	3.2E+05
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	1.0E-01	4.9E-01	2.1E+02	2.2E+02	--	--	--	--	--	--	--	--	1.0E-01	4.9E-01	2.1E+02	2.2E+02
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	1.0E+03	1.1E+03	--	--	--	--	--	--	--	--	--	--	1.0E+03	1.1E+03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	1.9E+06	7.6E+06	--	--	--	--	--	--	--	--	--	--	1.9E+06	7.6E+06
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	4.7E+05	5.1E+05	--	--	--	--	--	--	--	--	--	--	4.7E+05	5.1E+05
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	4.0E+06	1.9E+07	--	--	--	--	--	--	--	--	--	--	4.0E+06	1.9E+07
Foaming Agents	0	--	--	5.0E+02	--	--	--	1.8E+06	--	--	--	--	--	--	--	--	--	--	--	1.8E+06	--
Guthion	0	--	1.0E-02	--	--	--	1.4E-01	--	--	--	--	--	--	--	--	--	--	--	1.4E-01	--	--
Heptachlor ^C	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	6.3E-01	5.2E-02	7.9E-04	7.9E-04	--	--	--	--	--	--	--	--	6.3E-01	5.2E-02	7.9E-04	7.9E-04
Heptachlor Epoxide ^C	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	6.3E-01	5.2E-02	3.9E-04	3.9E-04	--	--	--	--	--	--	--	--	6.3E-01	5.2E-02	3.9E-04	3.9E-04
Hexachlorobenzene ^C	0	--	--	2.8E-03	2.9E-03	--	--	2.8E-03	2.9E-03	--	--	--	--	--	--	--	--	--	--	2.8E-03	2.9E-03
Hexachlorobutadiene ^C	0	--	--	4.4E+00	1.8E+02	--	--	4.4E+00	1.8E+02	--	--	--	--	--	--	--	--	--	--	4.4E+00	1.8E+02
Hexachlorocyclohexane																					
Alpha-BHC ^C	0	--	--	2.6E-02	4.9E-02	--	--	2.6E-02	4.9E-02	--	--	--	--	--	--	--	--	--	--	2.6E-02	4.9E-02
Hexachlorocyclohexane																					
Beta-BHC ^C	0	--	--	9.1E-02	1.7E-01	--	--	9.1E-02	1.7E-01	--	--	--	--	--	--	--	--	--	--	9.1E-02	1.7E-01
Hexachlorocyclohexane																					
Gamma-BHC ^C (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	1.1E+00	--	9.8E-01	1.8E+00	--	--	--	--	--	--	--	--	1.1E+00	--	9.8E-01	1.8E+00
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	1.4E+05	4.0E+06	--	--	--	--	--	--	--	--	--	--	1.4E+05	4.0E+06
Hexachloroethane ^C	0	--	--	1.4E+01	3.3E+01	--	--	1.4E+01	3.3E+01	--	--	--	--	--	--	--	--	--	--	1.4E+01	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	2.7E+01	--	--	--	--	--	--	--	--	--	--	--	2.7E+01	--	--
Indeno (1,2,3-cd) pyrene ^C	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Iron	0	--	--	3.0E+02	--	--	--	1.1E+06	--	--	--	--	--	--	--	--	--	--	--	1.1E+06	--
Isophorone ^C	0	--	--	3.5E+02	9.6E+03	--	--	3.5E+02	9.6E+03	--	--	--	--	--	--	--	--	--	--	3.5E+02	9.6E+03
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Lead	0	2.2E+02	2.1E+01	1.5E+01	--	2.6E+02	2.8E+02	5.4E+04	--	--	--	--	--	--	--	--	--	2.6E+02	2.8E+02	5.4E+04	--
Malathion	0	--	1.0E-01	--	--	--	1.4E+00	--	--	--	--	--	--	--	--	--	--	--	1.4E+00	--	--
Manganese	0	--	--	5.0E+01	--	--	--	1.8E+05	--	--	--	--	--	--	--	--	--	--	--	1.8E+05	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.7E+00	1.1E+01	--	--	--	--	--	--	--	--	--	--	1.7E+00	1.1E+01	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	1.7E+05	5.4E+06	--	--	--	--	--	--	--	--	--	--	1.7E+05	5.4E+06
Methylene Chloride ^C	0	--	--	4.6E+01	5.9E+03	--	--	4.6E+01	5.9E+03	--	--	--	--	--	--	--	--	--	--	4.6E+01	5.9E+03
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	4.1E-01	3.6E+05	--	--	--	--	--	--	--	--	--	--	4.1E-01	3.6E+05	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Nickel	0	2.7E+02	2.7E+01	6.1E+02	4.6E+03	3.3E+02	3.7E+02	2.2E+06	1.7E+07	--	--	--	--	--	--	--	--	3.3E+02	3.7E+02	2.2E+06	1.7E+07
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	3.6E+07	--	--	--	--	--	--	--	--	--	--	--	3.6E+07	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	6.1E+04	2.5E+06	--	--	--	--	--	--	--	--	--	--	6.1E+04	2.5E+06
N-Nitrosodimethylamine ^C	0	--	--	6.9E-03	3.0E+01	--	--	6.9E-03	3.0E+01	--	--	--	--	--	--	--	--	--	--	6.9E-03	3.0E+01
N-Nitrosodiphenylamine ^C	0	--	--	3.3E+01	6.0E+01	--	--	3.3E+01	6.0E+01	--	--	--	--	--	--	--	--	--	--	3.3E+01	6.0E+01
N-Nitrosodi-n-propylamine ^C	0	--	--	5.0E-02	5.1E+00	--	--	5.0E-02	5.1E+00	--	--	--	--	--	--	--	--	--	--	5.0E-02	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	3.4E+01	9.0E+01	--	--	--	--	--	--	--	--	--	--	3.4E+01	9.0E+01	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	7.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	7.8E-02	1.8E-01	--	--
PCB Total ^C	0	--	1.4E-02	6.4E-04	6.4E-04	--	1.9E-01	6.4E-04	6.4E-04	--	--	--	--	--	--	--	--	--	1.9E-01	6.4E-04	6.4E-04
Pentachlorophenol ^C	0	6.9E+00	1.1E+01	2.7E+00	3.0E+01	8.4E+00	1.5E+02	2.7E+00	3.0E+01	--	--	--	--	--	--	--	--	8.4E+00	1.5E+02	2.7E+00	3.0E+01
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	3.6E+07	3.1E+09	--	--	--	--	--	--	--	--	--	--	3.6E+07	3.1E+09
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	3.0E+06	1.4E+07	--	--	--	--	--	--	--	--	--	--	3.0E+06	1.4E+07
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	5.4E+04	--	--	--	--	--	--	--	--	--	--	--	5.4E+04	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	1.4E+04	1.4E+04	--	--	--	--	--	--	--	--	--	--	1.4E+04	1.4E+04
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	1.8E+04	--	--	--	--	--	--	--	--	--	--	--	1.8E+04	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	1.1E+05	--	--	--	--	--	--	--	--	--	--	--	1.1E+05	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	2.4E+01	6.8E+01	6.1E+05	1.5E+07	--	--	--	--	--	--	--	--	2.4E+01	6.8E+01	6.1E+05	1.5E+07
Silver	0	7.9E+00	--	--	--	9.5E+00	--	--	--	--	--	--	--	--	--	--	--	9.5E+00	--	--	--
Sulfate	0	--	--	2.5E+05	--	--	--	9.0E+08	--	--	--	--	--	--	--	--	--	--	--	9.0E+08	--
1,1,2,2-Tetrachloroethane ^C	0	--	--	1.7E+00	4.0E+01	--	--	1.7E+00	4.0E+01	--	--	--	--	--	--	--	--	--	--	1.7E+00	4.0E+01
Tetrachloroethylene ^C	0	--	--	6.9E+00	3.3E+01	--	--	6.9E+00	3.3E+01	--	--	--	--	--	--	--	--	--	--	6.9E+00	3.3E+01
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	8.7E+02	1.7E+03	--	--	--	--	--	--	--	--	--	--	8.7E+02	1.7E+03
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	1.8E+06	2.2E+07	--	--	--	--	--	--	--	--	--	--	1.8E+06	2.2E+07
Total dissolved solids	0	--	--	5.0E+05	--	--	--	1.8E+09	--	--	--	--	--	--	--	--	--	--	--	1.8E+09	--
Toxaphene ^C	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	8.8E-01	2.7E-03	2.8E-03	2.8E-03	--	--	--	--	--	--	--	--	8.8E-01	2.7E-03	2.8E-03	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	--	--	5.5E-01	9.8E-01	--	--	--	--	--	--	--	--	--	--	5.5E-01	9.8E-01	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	1.3E+05	2.5E+05	--	--	--	--	--	--	--	--	--	--	1.3E+05	2.5E+05
1,1,2-Trichloroethane ^C	0	--	--	5.9E+00	1.6E+02	--	--	5.9E+00	1.6E+02	--	--	--	--	--	--	--	--	--	--	5.9E+00	1.6E+02
Trichloroethylene ^C	0	--	--	2.5E+01	3.0E+02	--	--	2.5E+01	3.0E+02	--	--	--	--	--	--	--	--	--	--	2.5E+01	3.0E+02
2,4,6-Trichlorophenol ^C	0	--	--	1.4E+01	2.4E+01	--	--	1.4E+01	2.4E+01	--	--	--	--	--	--	--	--	--	--	1.4E+01	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	1.8E+05	--	--	--	--	--	--	--	--	--	--	--	1.8E+05	--
Vinyl Chloride ^C	0	--	--	2.5E-01	2.4E+01	--	--	2.5E-01	2.4E+01	--	--	--	--	--	--	--	--	--	--	2.5E-01	2.4E+01
Zinc	0	1.8E+02	1.6E+02	7.4E+03	2.6E+04	2.1E+02	2.1E+03	2.7E+07	9.4E+07	--	--	--	--	--	--	--	--	2.1E+02	2.1E+03	2.7E+07	9.4E+07

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	2.0E+04
Arsenic	1.6E+02
Barium	7.2E+06
Cadmium	3.3E+00
Chromium III	4.1E+02
Chromium VI	7.7E+00
Copper	1.0E+01
Iron	1.1E+06
Lead	1.1E+02
Manganese	1.8E+05
Mercury	6.7E-01
Nickel	1.3E+02
Selenium	9.6E+00
Silver	3.8E+00
Zinc	8.5E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

ATTACHMENT 8

Water Quality Criteria / Wasteload Allocation Analysis for 10 MGD Facility

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Leesburg WPCF

Permit No.: VA0092282

Receiving Stream: Potomac River

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	137 mg/L
90% Temperature (Annual) =	28.6 deg C
90% Temperature (Wet season) =	11.8 deg C
90% Maximum pH =	8.4 SU
10% Maximum pH =	7.7 SU
Tier Designation (1 or 2) =	1
Public Water Supply (PWS) Y/N? =	y
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	y

Stream Flows

1Q10 (Annual) =	546.9 MGD
7Q10 (Annual) =	627.4 MGD
30Q10 (Annual) =	740.8 MGD
1Q10 (Wet season) =	137022 MGD
30Q10 (Wet season) =	31616 MGD
30Q5 =	27064 MGD
Harmonic Mean =	MGD

Mixing Information

Annual - 1Q10 Mix =	0.28 %
- 7Q10 Mix =	15.21 %
- 30Q10 Mix =	17.63 %
Wet Season - 1Q10 Mix =	42.95 %
- 30Q10 Mix =	100 %

Effluent Information

Mean Hardness (as CaCO3) =	167 mg/L
90% Temp (Annual) =	25 deg C
90% Temp (Wet season) =	15 deg C
90% Maximum pH =	7 SU
10% Maximum pH =	6.7 SU
Discharge Flow =	10 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	6.7E+02	9.9E+02	--	--	1.8E+06	2.7E+06	--	--	--	--	--	--	--	--	--	--	1.8E+06	2.7E+06
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	1.7E+04	2.5E+04	--	--	--	--	--	--	--	--	--	--	1.7E+04	2.5E+04
Acrylonitrile ^C	0	--	--	5.1E-01	2.5E+00	--	--	5.1E-01	2.5E+00	--	--	--	--	--	--	--	--	--	--	5.1E-01	2.5E+00
Aldrin ^C	0	3.0E+00	--	4.9E-04	5.0E-04	3.5E+00	--	4.9E-04	5.0E-04	--	--	--	--	--	--	--	--	3.5E+00	--	4.9E-04	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	3.42E+01	1.05E+00	--	--	3.94E+01	1.47E+01	--	--	--	--	--	--	--	--	--	--	3.94E+01	1.47E+01	--	--
Ammonia-N (mg/l) (High Flow)	0	3.90E+00	1.30E+00	--	--	2.29E+04	4.10E+03	--	--	--	--	--	--	--	--	--	--	2.29E+04	4.10E+03	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	2.2E+07	1.1E+08	--	--	--	--	--	--	--	--	--	--	2.2E+07	1.1E+08
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	1.5E+04	1.7E+06	--	--	--	--	--	--	--	--	--	--	1.5E+04	1.7E+06
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	--	3.9E+02	1.6E+03	2.7E+04	--	--	--	--	--	--	--	--	--	3.9E+02	1.6E+03	2.7E+04	--
Barium	0	--	--	2.0E+03	--	--	--	5.4E+06	--	--	--	--	--	--	--	--	--	--	--	5.4E+06	--
Benzene ^C	0	--	--	2.2E+01	5.1E+02	--	--	2.2E+01	5.1E+02	--	--	--	--	--	--	--	--	--	--	2.2E+01	5.1E+02
Benzidine ^C	0	--	--	8.6E-04	2.0E-03	--	--	8.6E-04	2.0E-03	--	--	--	--	--	--	--	--	--	--	8.6E-04	2.0E-03
Benzo (a) anthracene ^C	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (b) fluoranthene ^C	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (k) fluoranthene ^C	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (a) pyrene ^C	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Bis2-Chloroethyl Ether ^C	0	--	--	3.0E-01	5.3E+00	--	--	3.0E-01	5.3E+00	--	--	--	--	--	--	--	--	--	--	3.0E-01	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	3.8E+06	1.8E+08	--	--	--	--	--	--	--	--	--	--	3.8E+06	1.8E+08
Bis 2-Ethylhexyl Phthalate ^C	0	--	--	1.2E+01	2.2E+01	--	--	1.2E+01	2.2E+01	--	--	--	--	--	--	--	--	--	--	1.2E+01	2.2E+01
Bromoform ^C	0	--	--	4.3E+01	1.4E+03	--	--	4.3E+01	1.4E+03	--	--	--	--	--	--	--	--	--	--	4.3E+01	1.4E+03
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	4.1E+06	5.1E+06	--	--	--	--	--	--	--	--	--	--	4.1E+06	5.1E+06
Cadmium	0	6.8E+00	1.5E+00	5.0E+00	--	7.8E+00	1.6E+01	1.4E+04	--	--	--	--	--	--	--	--	--	7.8E+00	1.6E+01	1.4E+04	--
Carbon Tetrachloride ^C	0	--	--	2.3E+00	1.6E+01	--	--	2.3E+00	1.6E+01	--	--	--	--	--	--	--	--	--	--	2.3E+00	1.6E+01
Chlordane ^C	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	2.8E+00	4.5E-02	8.0E-03	8.1E-03	--	--	--	--	--	--	--	--	2.8E+00	4.5E-02	8.0E-03	8.1E-03
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	9.9E+05	2.4E+06	6.8E+08	--	--	--	--	--	--	--	--	--	9.9E+05	2.4E+06	6.8E+08	--
TRC	0	1.9E+01	1.1E+01	--	--	2.2E+01	1.2E+02	--	--	--	--	--	--	--	--	--	--	2.2E+01	1.2E+02	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	3.5E+05	4.3E+06	--	--	--	--	--	--	--	--	--	--	3.5E+05	4.3E+06

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane ^c	0	--	--	4.0E+00	1.3E+02	--	--	4.0E+00	1.3E+02	--	--	--	--	--	--	--	--	--	--	4.0E+00	1.3E+02
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	9.2E+05	3.0E+07	--	--	--	--	--	--	--	--	--	--	9.2E+05	3.0E+07
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	2.7E+06	4.3E+06	--	--	--	--	--	--	--	--	--	--	2.7E+06	4.3E+06
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	2.2E+05	4.1E+05	--	--	--	--	--	--	--	--	--	--	2.2E+05	4.1E+05
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	9.6E-02	4.3E-01	--	--	--	--	--	--	--	--	--	--	9.6E-02	4.3E-01	--	--
Chromium III	0	8.5E+02	9.8E+01	--	--	9.8E+02	1.0E+03	--	--	--	--	--	--	--	--	--	--	9.8E+02	1.0E+03	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.8E+01	1.2E+02	--	--	--	--	--	--	--	--	--	--	1.8E+01	1.2E+02	--	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	2.7E+05	--	--	--	--	--	--	--	--	--	--	--	2.7E+05	--
Chrysene ^c	0	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	--	--	--	--	--	--	--	--	3.8E-03	1.8E-02
Copper	0	2.1E+01	1.2E+01	1.3E+03	--	2.5E+01	1.3E+02	3.5E+06	--	--	--	--	--	--	--	--	--	2.5E+01	1.3E+02	3.5E+06	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	2.5E+01	5.5E+01	3.8E+05	4.3E+07	--	--	--	--	--	--	--	--	2.5E+01	5.5E+01	3.8E+05	4.3E+07
DDD ^c	0	--	--	3.1E-03	3.1E-03	--	--	3.1E-03	3.1E-03	--	--	--	--	--	--	--	--	--	--	3.1E-03	3.1E-03
DDE ^c	0	--	--	2.2E-03	2.2E-03	--	--	2.2E-03	2.2E-03	--	--	--	--	--	--	--	--	--	--	2.2E-03	2.2E-03
DDT ^c	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.3E+00	1.1E-02	2.2E-03	2.2E-03	--	--	--	--	--	--	--	--	1.3E+00	1.1E-02	2.2E-03	2.2E-03
Demeton	0	--	1.0E-01	--	--	--	1.1E+00	--	--	--	--	--	--	--	--	--	--	--	1.1E+00	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	2.0E-01	1.8E+00	--	--	--	--	--	--	--	--	--	--	2.0E-01	1.8E+00	--	--
Dibenz(a,h)anthracene ^c	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	1.1E+06	3.5E+06	--	--	--	--	--	--	--	--	--	--	1.1E+06	3.5E+06
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	8.7E+05	2.6E+06	--	--	--	--	--	--	--	--	--	--	8.7E+05	2.6E+06
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	1.7E+05	5.1E+05	--	--	--	--	--	--	--	--	--	--	1.7E+05	5.1E+05
3,3-Dichlorobenzidine ^c	0	--	--	2.1E-01	2.8E-01	--	--	2.1E-01	2.8E-01	--	--	--	--	--	--	--	--	--	--	2.1E-01	2.8E-01
Dichlorobromomethane ^c	0	--	--	5.5E+00	1.7E+02	--	--	5.5E+00	1.7E+02	--	--	--	--	--	--	--	--	--	--	5.5E+00	1.7E+02
1,2-Dichloroethane ^c	0	--	--	3.8E+00	3.7E+02	--	--	3.8E+00	3.7E+02	--	--	--	--	--	--	--	--	--	--	3.8E+00	3.7E+02
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	8.9E+05	1.9E+07	--	--	--	--	--	--	--	--	--	--	8.9E+05	1.9E+07
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	3.8E+05	2.7E+07	--	--	--	--	--	--	--	--	--	--	3.8E+05	2.7E+07
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	2.1E+05	7.9E+05	--	--	--	--	--	--	--	--	--	--	2.1E+05	7.9E+05
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	2.7E+05	--	--	--	--	--	--	--	--	--	--	--	2.7E+05	--
1,2-Dichloropropane ^c	0	--	--	5.0E+00	1.5E+02	--	--	5.0E+00	1.5E+02	--	--	--	--	--	--	--	--	--	--	5.0E+00	1.5E+02
1,3-Dichloropropene ^c	0	--	--	3.4E+00	2.1E+02	--	--	3.4E+00	2.1E+02	--	--	--	--	--	--	--	--	--	--	3.4E+00	2.1E+02
Dieldrin ^c	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	2.8E-01	5.9E-01	5.2E-04	5.4E-04	--	--	--	--	--	--	--	--	2.8E-01	5.9E-01	5.2E-04	5.4E-04
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	4.6E+07	1.2E+08	--	--	--	--	--	--	--	--	--	--	4.6E+07	1.2E+08
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	1.0E+06	2.3E+06	--	--	--	--	--	--	--	--	--	--	1.0E+06	2.3E+06
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	7.3E+08	3.0E+09	--	--	--	--	--	--	--	--	--	--	7.3E+08	3.0E+09
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	5.4E+06	1.2E+07	--	--	--	--	--	--	--	--	--	--	5.4E+06	1.2E+07
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	1.9E+05	1.4E+07	--	--	--	--	--	--	--	--	--	--	1.9E+05	1.4E+07
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	3.5E+04	7.6E+05	--	--	--	--	--	--	--	--	--	--	3.5E+04	7.6E+05
2,4-Dinitrotoluene ^c	0	--	--	1.1E+00	3.4E+01	--	--	1.1E+00	3.4E+01	--	--	--	--	--	--	--	--	--	--	1.1E+00	3.4E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	1.4E-04	1.4E-04	--	--	--	--	--	--	--	--	--	--	1.4E-04	1.4E-04
1,2-Diphenylhydrazine ^c	0	--	--	3.6E-01	2.0E+00	--	--	3.6E-01	2.0E+00	--	--	--	--	--	--	--	--	--	--	3.6E-01	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.5E-01	5.9E-01	1.7E+05	2.4E+05	--	--	--	--	--	--	--	--	2.5E-01	5.9E-01	1.7E+05	2.4E+05
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.5E-01	5.9E-01	1.7E+05	2.4E+05	--	--	--	--	--	--	--	--	2.5E-01	5.9E-01	1.7E+05	2.4E+05
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.5E-01	5.9E-01	--	--	--	--	--	--	--	--	--	--	2.5E-01	5.9E-01	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	1.7E+05	2.4E+05	--	--	--	--	--	--	--	--	--	--	1.7E+05	2.4E+05
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	9.9E-02	3.8E-01	1.6E+02	1.6E+02	--	--	--	--	--	--	--	--	9.9E-02	3.8E-01	1.6E+02	1.6E+02
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	7.9E+02	8.1E+02	--	--	--	--	--	--	--	--	--	--	7.9E+02	8.1E+02

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	1.4E+06	5.7E+06	--	--	--	--	--	--	--	--	--	--	1.4E+06	5.7E+06
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	3.5E+05	3.8E+05	--	--	--	--	--	--	--	--	--	--	3.5E+05	3.8E+05
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	3.0E+06	1.4E+07	--	--	--	--	--	--	--	--	--	--	3.0E+06	1.4E+07
Foaming Agents	0	--	--	5.0E+02	--	--	--	1.4E+06	--	--	--	--	--	--	--	--	--	--	--	1.4E+06	--
Guthion	0	--	1.0E-02	--	--	--	1.1E-01	--	--	--	--	--	--	--	--	--	--	--	1.1E-01	--	--
Heptachlor ^C	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	6.0E-01	4.0E-02	7.9E-04	7.9E-04	--	--	--	--	--	--	--	--	6.0E-01	4.0E-02	7.9E-04	7.9E-04
Heptachlor Epoxide ^C	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	6.0E-01	4.0E-02	3.9E-04	3.9E-04	--	--	--	--	--	--	--	--	6.0E-01	4.0E-02	3.9E-04	3.9E-04
Hexachlorobenzene ^C	0	--	--	2.8E-03	2.9E-03	--	--	2.8E-03	2.9E-03	--	--	--	--	--	--	--	--	--	--	2.8E-03	2.9E-03
Hexachlorobutadiene ^C	0	--	--	4.4E+00	1.8E+02	--	--	4.4E+00	1.8E+02	--	--	--	--	--	--	--	--	--	--	4.4E+00	1.8E+02
Hexachlorocyclohexane																					
Alpha-BHC ^C	0	--	--	2.8E-02	4.9E-02	--	--	2.8E-02	4.9E-02	--	--	--	--	--	--	--	--	--	--	2.8E-02	4.9E-02
Hexachlorocyclohexane																					
Beta-BHC ^C	0	--	--	9.1E-02	1.7E-01	--	--	9.1E-02	1.7E-01	--	--	--	--	--	--	--	--	--	--	9.1E-02	1.7E-01
Hexachlorocyclohexane																					
Gamma-BHC ^C (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	1.1E+00	--	9.8E-01	1.8E+00	--	--	--	--	--	--	--	--	1.1E+00	--	9.8E-01	1.8E+00
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	1.1E+05	3.0E+06	--	--	--	--	--	--	--	--	--	--	1.1E+05	3.0E+06
Hexachloroethane ^C	0	--	--	1.4E+01	3.3E+01	--	--	1.4E+01	3.3E+01	--	--	--	--	--	--	--	--	--	--	1.4E+01	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	2.1E+01	--	--	--	--	--	--	--	--	--	--	--	2.1E+01	--	--
Indeno (1,2,3-cd) pyrene ^C	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Iron	0	--	--	3.0E+02	--	--	--	8.1E+05	--	--	--	--	--	--	--	--	--	--	--	8.1E+05	--
Isophorone ^C	0	--	--	3.5E+02	9.6E+03	--	--	3.5E+02	9.6E+03	--	--	--	--	--	--	--	--	--	--	3.5E+02	9.6E+03
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Lead	0	2.2E+02	2.1E+01	1.5E+01	--	2.6E+02	2.2E+02	4.1E+04	--	--	--	--	--	--	--	--	--	2.6E+02	2.2E+02	4.1E+04	--
Malathion	0	--	1.0E-01	--	--	--	1.1E+00	--	--	--	--	--	--	--	--	--	--	--	1.1E+00	--	--
Manganese	0	--	--	5.0E+01	--	--	--	1.4E+05	--	--	--	--	--	--	--	--	--	--	--	1.4E+05	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.6E+00	8.1E+00	--	--	--	--	--	--	--	--	--	--	1.6E+00	8.1E+00	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	1.3E+05	4.1E+06	--	--	--	--	--	--	--	--	--	--	1.3E+05	4.1E+06
Methylene Chloride ^C	0	--	--	4.6E+01	5.9E+03	--	--	4.6E+01	5.9E+03	--	--	--	--	--	--	--	--	--	--	4.6E+01	5.9E+03
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	3.2E-01	2.7E+05	--	--	--	--	--	--	--	--	--	--	3.2E-01	2.7E+05	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Nickel	0	2.8E+02	2.7E+01	6.1E+02	4.6E+03	3.2E+02	2.8E+02	1.7E+06	1.2E+07	--	--	--	--	--	--	--	--	3.2E+02	2.8E+02	1.7E+06	1.2E+07
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	2.7E+07	--	--	--	--	--	--	--	--	--	--	--	2.7E+07	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	4.6E+04	1.9E+06	--	--	--	--	--	--	--	--	--	--	4.6E+04	1.9E+06
N-Nitrosodimethylamine ^C	0	--	--	6.9E-03	3.0E+01	--	--	6.9E-03	3.0E+01	--	--	--	--	--	--	--	--	--	--	6.9E-03	3.0E+01
N-Nitrosodiphenylamine ^C	0	--	--	3.3E+01	6.0E+01	--	--	3.3E+01	6.0E+01	--	--	--	--	--	--	--	--	--	--	3.3E+01	6.0E+01
N-Nitrosodi-n-propylamine ^C	0	--	--	5.0E-02	5.1E+00	--	--	5.0E-02	5.1E+00	--	--	--	--	--	--	--	--	--	--	5.0E-02	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	3.2E+01	7.0E+01	--	--	--	--	--	--	--	--	--	--	3.2E+01	7.0E+01	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	7.5E-02	1.4E-01	--	--	--	--	--	--	--	--	--	--	7.5E-02	1.4E-01	--	--
PCB Total ^C	0	--	1.4E-02	6.4E-04	6.4E-04	--	1.5E-01	6.4E-04	6.4E-04	--	--	--	--	--	--	--	--	--	1.5E-01	6.4E-04	6.4E-04
Pentachlorophenol ^C	0	6.8E+00	1.0E+01	2.7E+00	3.0E+01	7.9E+00	1.1E+02	2.7E+00	3.0E+01	--	--	--	--	--	--	--	--	7.9E+00	1.1E+02	2.7E+00	3.0E+01
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	2.7E+07	2.3E+09	--	--	--	--	--	--	--	--	--	--	2.7E+07	2.3E+09
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	2.2E+06	1.1E+07	--	--	--	--	--	--	--	--	--	--	2.2E+06	1.1E+07
Radionuclides																					
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	4.1E+04	--	--	--	--	--	--	--	--	--	--	--	4.1E+04	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	1.1E+04	1.1E+04	--	--	--	--	--	--	--	--	--	--	1.1E+04	1.1E+04
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	1.4E+04	--	--	--	--	--	--	--	--	--	--	--	1.4E+04	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	8.1E+04	--	--	--	--	--	--	--	--	--	--	--	8.1E+04	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	2.3E+01	5.3E+01	4.6E+05	1.1E+07	--	--	--	--	--	--	--	--	2.3E+01	5.3E+01	4.6E+05	1.1E+07
Silver	0	8.0E+00	--	--	--	9.2E+00	--	--	--	--	--	--	--	--	--	--	--	9.2E+00	--	--	--
Sulfate	0	--	--	2.5E+05	--	--	--	6.8E+08	--	--	--	--	--	--	--	--	--	--	--	6.8E+08	--
1,1,2,2-Tetrachloroethane ^C	0	--	--	1.7E+00	4.0E+01	--	--	1.7E+00	4.0E+01	--	--	--	--	--	--	--	--	--	--	1.7E+00	4.0E+01
Tetrachloroethylene ^C	0	--	--	6.9E+00	3.3E+01	--	--	6.9E+00	3.3E+01	--	--	--	--	--	--	--	--	--	--	6.9E+00	3.3E+01
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	6.5E+02	1.3E+03	--	--	--	--	--	--	--	--	--	--	6.5E+02	1.3E+03
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	1.4E+06	1.6E+07	--	--	--	--	--	--	--	--	--	--	1.4E+06	1.6E+07
Total dissolved solids	0	--	--	5.0E+05	--	--	--	1.4E+09	--	--	--	--	--	--	--	--	--	--	--	1.4E+09	--
Toxaphene ^C	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	8.4E-01	2.1E-03	2.8E-03	2.8E-03	--	--	--	--	--	--	--	--	8.4E-01	2.1E-03	2.8E-03	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	--	--	5.3E-01	7.6E-01	--	--	--	--	--	--	--	--	--	--	5.3E-01	7.6E-01	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	9.5E+04	1.9E+05	--	--	--	--	--	--	--	--	--	--	9.5E+04	1.9E+05
1,1,2-Trichloroethane ^C	0	--	--	5.9E+00	1.6E+02	--	--	5.9E+00	1.6E+02	--	--	--	--	--	--	--	--	--	--	5.9E+00	1.6E+02
Trichloroethylene ^C	0	--	--	2.5E+01	3.0E+02	--	--	2.5E+01	3.0E+02	--	--	--	--	--	--	--	--	--	--	2.5E+01	3.0E+02
2,4,6-Trichlorophenol ^C	0	--	--	1.4E+01	2.4E+01	--	--	1.4E+01	2.4E+01	--	--	--	--	--	--	--	--	--	--	1.4E+01	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	1.4E+05	--	--	--	--	--	--	--	--	--	--	--	1.4E+05	--
Vinyl Chloride ^C	0	--	--	2.5E-01	2.4E+01	--	--	2.5E-01	2.4E+01	--	--	--	--	--	--	--	--	--	--	2.5E-01	2.4E+01
Zinc	0	1.8E+02	1.6E+02	7.4E+03	2.6E+04	2.0E+02	1.7E+03	2.0E+07	7.0E+07	--	--	--	--	--	--	--	--	2.0E+02	1.7E+03	2.0E+07	7.0E+07

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	1.5E+04
Arsenic	1.6E+02
Barium	5.4E+06
Cadmium	3.1E+00
Chromium III	3.9E+02
Chromium VI	7.4E+00
Copper	9.8E+00
Iron	8.1E+05
Lead	1.0E+02
Manganese	1.4E+05
Mercury	6.5E-01
Nickel	1.3E+02
Selenium	9.2E+00
Silver	3.7E+00
Zinc	8.2E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

ATTACHMENT 9

Ambient pH and Temperature Data
from
Monitoring Station POT1471

POT1471 Monitoring Station - Potomac River at White's Ferry

EVENT_ID	STATION	SAMPLE_DATE	SAMPLE_TIME	PARAMETER	VALUE	UNIT
188465	POT1471	1/9/2008	11:10	PH	8.2	SU
188080	POT1471	2/6/2008	11:05	PH	7.8	SU
188193	POT1471	3/12/2008	11:21	PH	7.9	SU
187944	POT1471	4/9/2008	11:05	PH	8.3	SU
188330	POT1471	5/7/2008	10:50	PH	7.8	SU
187808	POT1471	6/4/2008	11:50	PH	8	SU
189145	POT1471	7/2/2008	11:55	PH	8.3	SU
188998	POT1471	8/6/2008	11:50	PH	8.2	SU
189529	POT1471	9/10/2008	11:25	PH	7.9	SU
189284	POT1471	10/15/2008	12:03	PH	8.4	SU
189408	POT1471	11/12/2008	12:46	PH	8.6	SU
190696	POT1471	12/10/2008	11:40	PH	8.2	SU
189650	POT1471	1/7/2009	11:39	PH	7.9	SU
189761	POT1471	2/4/2009	12:45	PH	8.1	SU
189880	POT1471	3/11/2009	11:01	PH	8.2	SU
191350	POT1471	4/8/2009	11:00	PH	7.6	SU
190011	POT1471	5/6/2009	11:20	PH	7.5	SU
190146	POT1471	6/10/2009	11:34	PH	7.8	SU
190283	POT1471	7/8/2009	11:20	PH	8.3	SU
190430	POT1471	8/5/2009	12:43	PH	7.8	SU
191489	POT1471	9/9/2009	11:00	PH	8.4	SU
190570	POT1471	10/14/2009	12:02	PH	8.4	SU
191106	POT1471	11/12/2009	12:25	PH	7.9	SU
191223	POT1471	12/2/2009	11:05	PH	8.2	SU
193808	POT1471	1/6/2010	10:45	PH	8	SU
193952	POT1471	2/3/2010	12:10	PH	7.6	SU
194067	POT1471	3/10/2010	10:40	PH	8.1	SU
194271	POT1471	4/7/2010	11:20	PH	7.9	SU
194389	POT1471	5/5/2010	11:52	PH	8.3	SU
194507	POT1471	6/16/2010	11:10	PH	8.1	SU
195830	POT1471	7/7/2010	11:20	PH	7.8	SU
195065	POT1471	8/18/2010	10:53	PH	8.3	SU
196439	POT1471	9/15/2010	13:10	PH	8.4	SU
196324	POT1471	10/13/2010	12:25	PH	8.3	SU
197943	POT1471	11/9/2010	11:55	PH	8.3	SU
198047	POT1471	12/8/2010	11:10	PH	7.9	SU
198799	POT1471	1/5/2011	11:20	PH	8.2	SU
198688	POT1471	2/2/2011	11:40	PH	8.4	SU
199052	POT1471	3/2/2011	10:45	PH	7.7	SU
198932	POT1471	4/6/2011	10:35	PH	8	SU
199274	POT1471	5/11/2011	12:08	PH	8.4	SU
199394	POT1471	6/15/2011	10:58	PH	8.4	SU
200926	POT1471	7/6/2011	11:35	PH	8.5	SU

201116	POT1471	8/10/2011	11:42	PH	8.4	SU
201921	POT1471	9/7/2011	10:45	PH	7.9	SU
202094	POT1471	10/5/2011	12:50	PH	7.8	SU
202766	POT1471	11/9/2011	10:55	PH	7.9	SU
202364	POT1471	12/7/2011	10:45	PH	7.7	SU
204575	POT1471	1/4/2012	12:20	PH	7.7	SU
204456	POT1471	2/1/2012	11:19	PH	7.9	SU
204859	POT1471	3/7/2012	11:20	PH	7.9	SU
204978	POT1471	4/4/2012	10:51	PH	7.9	SU
205098	POT1471	5/2/2012	10:40	PH	8.3	SU
205217	POT1471	6/13/2012	11:25	PH	7.9	SU
208536	POT1471	7/11/2012	11:15	PH	7.7	SU
208416	POT1471	8/8/2012	12:20	PH	8.3	SU
209250	POT1471	9/5/2012	10:45	PH	8.3	SU
208956	POT1471	10/3/2012	10:55	PH	7.9	SU
209509	POT1471	11/7/2012	11:35	PH	7.8	SU
209392	POT1471	12/5/2012	11:20	PH	8.2	SU
				90th	8.4	
				10th	7.7	
188465	POT1471	1/9/2008	11:10	WTEMP	9.1	DEG C
188080	POT1471	2/6/2008	11:05	WTEMP	6.9	DEG C
188193	POT1471	3/12/2008	11:21	WTEMP	7.1	DEG C
187944	POT1471	4/9/2008	11:05	WTEMP	11.7	DEG C
189408	POT1471	11/12/2008	12:46	WTEMP	12.9	DEG C
190696	POT1471	12/10/2008	11:40	WTEMP	7.7	DEG C
189650	POT1471	1/7/2009	11:39	WTEMP	3.9	DEG C
189761	POT1471	2/4/2009	12:45	WTEMP	3.2	DEG C
189880	POT1471	3/11/2009	11:01	WTEMP	11.1	DEG C
191350	POT1471	4/8/2009	11:00	WTEMP	10.5	DEG C
191106	POT1471	11/12/2009	12:25	WTEMP	11.6	DEG C
191223	POT1471	12/2/2009	11:05	WTEMP	7.3	DEG C
193808	POT1471	1/6/2010	10:45	WTEMP	0.3	DEG C
193952	POT1471	2/3/2010	12:10	WTEMP	4.6	DEG C
194067	POT1471	3/10/2010	10:40	WTEMP	7.3	DEG C
194271	POT1471	4/7/2010	11:20	WTEMP	20.2	DEG C
197943	POT1471	11/9/2010	11:55	WTEMP	11.2	DEG C
198047	POT1471	12/8/2010	11:10	WTEMP	3.4	DEG C
198799	POT1471	1/5/2011	11:20	WTEMP	5.4	DEG C
198688	POT1471	2/2/2011	11:40	WTEMP	2.3	DEG C
199052	POT1471	3/2/2011	10:45	WTEMP	5.9	DEG C
198932	POT1471	4/6/2011	10:35	WTEMP	8.7	DEG C
202766	POT1471	11/9/2011	10:55	WTEMP	11.2	DEG C
202364	POT1471	12/7/2011	10:45	WTEMP	9.1	DEG C
204575	POT1471	1/4/2012	12:20	WTEMP	2.2	DEG C
204456	POT1471	2/1/2012	11:19	WTEMP	6.2	DEG C
204859	POT1471	3/7/2012	11:20	WTEMP	6.8	DEG C

204978	POT1471	4/4/2012	10:51	WTEMP	14.8	DEG C
209509	POT1471	11/7/2012	11:35	WTEMP	10.8	DEG C
209392	POT1471	12/5/2012	11:20	WTEMP	9.4	DEG C
			90th Winter	11.8		
188330	POT1471	5/7/2008	10:50	WTEMP	18.6	DEG C
187808	POT1471	6/4/2008	11:50	WTEMP	23	DEG C
189145	POT1471	7/2/2008	11:55	WTEMP	27.6	DEG C
188998	POT1471	8/6/2008	11:50	WTEMP	29	DEG C
189529	POT1471	9/10/2008	11:25	WTEMP	24.8	DEG C
189284	POT1471	10/15/2008	12:03	WTEMP	21.3	DEG C
190011	POT1471	5/6/2009	11:20	WTEMP	14.1	DEG C
190146	POT1471	6/10/2009	11:34	WTEMP	21.7	DEG C
190283	POT1471	7/8/2009	11:20	WTEMP	26.2	DEG C
190430	POT1471	8/5/2009	12:43	WTEMP	28.1	DEG C
191489	POT1471	9/9/2009	11:00	WTEMP	23.2	DEG C
190570	POT1471	10/14/2009	12:02	WTEMP	14.5	DEG C
194389	POT1471	5/5/2010	11:52	WTEMP	20.7	DEG C
194507	POT1471	6/16/2010	11:10	WTEMP	26.5	DEG C
195830	POT1471	7/7/2010	11:20	WTEMP	32.8	DEG C
195065	POT1471	8/18/2010	10:53	WTEMP	29.1	DEG C
196439	POT1471	9/15/2010	13:10	WTEMP	23.8	DEG C
196324	POT1471	10/13/2010	12:25	WTEMP	18.3	DEG C
199274	POT1471	5/11/2011	12:08	WTEMP	18.4	DEG C
199394	POT1471	6/15/2011	10:58	WTEMP	23	DEG C
200926	POT1471	7/6/2011	11:35	WTEMP	29.1	DEG C
201116	POT1471	8/10/2011	11:42	WTEMP	28.6	DEG C
201921	POT1471	9/7/2011	10:45	WTEMP	20.6	DEG C
202094	POT1471	10/5/2011	12:50	WTEMP	15.2	DEG C
205098	POT1471	5/2/2012	10:40	WTEMP	17.9	DEG C
205217	POT1471	6/13/2012	11:25	WTEMP	23	DEG C
208536	POT1471	7/11/2012	11:15	WTEMP	29.3	DEG C
208416	POT1471	8/8/2012	12:20	WTEMP	30.1	DEG C
209250	POT1471	9/5/2012	10:45	WTEMP	28.5	DEG C
208956	POT1471	10/3/2012	10:55	WTEMP	19.4	DEG C

ATTACHMENT 10

Effluent Data
November 2008 – April 2013

Permit #:VA0092282

Facility: Leesburg Town - Water Pollution Control Division

Rec'd	Parameter Description	QTY AVG	Lim Avg	QTY MAX	Lim Max	Units	CONC MIN	Lim Min	CONC AVG	Lim Avg	CONC MAX	Lim Max	Units
10-Nov-2008	CBOD5	19.2	280	19.1	420	KG/D	NULL	*****	1.1	10	1.1	15	MG/L
11-Dec-2008	CBOD5	12.6	280	16.2	420	KG/D	NULL	*****	0.7	10	0.9	15	MG/L
12-Jan-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
12-Feb-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Mar-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Apr-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
11-May-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Jun-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Jul-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Aug-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
14-Sep-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
14-Oct-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Nov-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Dec-2009	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
11-Jan-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
12-Feb-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
11-Mar-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
12-Apr-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-May-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
11-Jun-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Jul-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Aug-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Sep-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
08-Oct-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
12-Nov-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Dec-2010	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Jan-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Feb-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Mar-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
08-Apr-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-May-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Jun-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
12-Jul-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Aug-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Sep-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
12-Oct-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
14-Nov-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L

13-Dec-2011	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
12-Jan-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
08-Feb-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Mar-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Apr-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-May-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
08-Jun-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Jul-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Aug-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Sep-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
11-Oct-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Nov-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Dec-2012	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
08-Jan-2013	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
08-Feb-2013	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
11-Mar-2013	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
11-Apr-2013	CBOD5	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Nov-2008	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.0	NL	NULL	*****	MG/L
11-Dec-2008	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	5.2	NL	NULL	*****	MG/L
12-Jan-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	5.1	NL	NULL	*****	MG/L
12-Feb-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	5.0	NL	NULL	*****	MG/L
10-Mar-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.8	NL	NULL	*****	MG/L
09-Apr-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	5.4	NL	NULL	*****	MG/L
11-May-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.9	NL	NULL	*****	MG/L
10-Jun-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.1	NL	NULL	*****	MG/L
10-Jul-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.7	NL	NULL	*****	MG/L
10-Aug-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.3	NL	NULL	*****	MG/L
14-Sep-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.7	NL	NULL	*****	MG/L
14-Oct-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.8	NL	NULL	*****	MG/L
09-Nov-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.8	NL	NULL	*****	MG/L
10-Dec-2009	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	5.4	NL	NULL	*****	MG/L
11-Jan-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	5.1	NL	NULL	*****	MG/L
12-Feb-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	5.2	NL	NULL	*****	MG/L
11-Mar-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	5.6	NL	NULL	*****	MG/L
12-Apr-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.8	NL	NULL	*****	MG/L
10-May-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	6.2	NL	NULL	*****	MG/L
11-Jun-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	5.6	NL	NULL	*****	MG/L
09-Jul-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	6.0	NL	NULL	*****	MG/L
10-Aug-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	6.2	NL	NULL	*****	MG/L
10-Sep-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.3	NL	NULL	*****	MG/L
08-Oct-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	5.0	NL	NULL	*****	MG/L
12-Nov-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	1.6	NL	NULL	*****	MG/L
10-Dec-2010	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.1	NL	NULL	*****	MG/L

10-Jan-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	5.0	NL	NULL	*****	MG/L
09-Feb-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.5	NL	NULL	*****	MG/L
09-Mar-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.0	NL	NULL	*****	MG/L
08-Apr-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.3	NL	NULL	*****	MG/L
10-May-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	2.9	NL	NULL	*****	MG/L
09-Jun-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.0	NL	NULL	*****	MG/L
12-Jul-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.1	NL	NULL	*****	MG/L
10-Aug-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	2.9	NL	NULL	*****	MG/L
09-Sep-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.1	NL	NULL	*****	MG/L
12-Oct-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.4	NL	NULL	*****	MG/L
14-Nov-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	2.9	NL	NULL	*****	MG/L
13-Dec-2011	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.1	NL	NULL	*****	MG/L
12-Jan-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.4	NL	NULL	*****	MG/L
08-Feb-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.6	NL	NULL	*****	MG/L
09-Mar-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.5	NL	NULL	*****	MG/L
10-Apr-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.7	NL	NULL	*****	MG/L
09-May-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.7	NL	NULL	*****	MG/L
08-Jun-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.2	NL	NULL	*****	MG/L
10-Jul-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.5	NL	NULL	*****	MG/L
09-Aug-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.8	NL	NULL	*****	MG/L
10-Sep-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.5	NL	NULL	*****	MG/L
11-Oct-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	2.8	NL	NULL	*****	MG/L
09-Nov-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	6.1	NL	NULL	*****	MG/L
10-Dec-2012	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.3	NL	NULL	*****	MG/L
08-Jan-2013	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.2	NL	NULL	*****	MG/L
08-Feb-2013	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	4.8	NL	NULL	*****	MG/L
11-Mar-2013	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	3.1	NL	NULL	*****	MG/L
11-Apr-2013	NITRITE+NITRATE-N,TOTAL	NULL	*****	NULL	*****	NULL	NULL	*****	2.9	NL	NULL	*****	MG/L
10-Nov-2008	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	5.2	NL	NULL	*****	MG/L
11-Dec-2008	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	5.9	NL	NULL	*****	MG/L
12-Jan-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	6.0	NL	NULL	*****	MG/L
12-Feb-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	6.1	NL	NULL	*****	MG/L
10-Mar-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	4.7	NL	NULL	*****	MG/L
09-Apr-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	6.3	NL	NULL	*****	MG/L
11-May-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	5.7	NL	NULL	*****	MG/L
10-Jun-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	4.9	NL	NULL	*****	MG/L
10-Jul-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	5.5	NL	NULL	*****	MG/L
10-Aug-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	5.2	NL	NULL	*****	MG/L
14-Sep-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	5.5	NL	NULL	*****	MG/L
14-Oct-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	4.7	NL	NULL	*****	MG/L
09-Nov-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	4.8	NL	NULL	*****	MG/L
10-Dec-2009	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	6.4	NL	NULL	*****	MG/L
11-Jan-2010	NITROGEN, TOTAL (AS N)	NULL	*****	NULL	*****	NULL	NULL	*****	7.2	NL	NULL	*****	MG/L

[illegible]

08-Jun-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*****	NULL	*****	NULL	NULL	*****	0.6	NL	NULL	*****	MG/L
10-Jul-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*****	NULL	*****	NULL	NULL	*****	0.5	NL	NULL	*****	MG/L
09-Aug-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*****	NULL	*****	NULL	NULL	*****	0.1	NL	NULL	*****	MG/L
10-Sep-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*****	NULL	*****	NULL	NULL	*****	0.4	NL	NULL	*****	MG/L
11-Oct-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*****	NULL	*****	NULL	NULL	*****	0.2	NL	NULL	*****	MG/L
09-Nov-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*****	NULL	*****	NULL	NULL	*****	1.1	NL	NULL	*****	MG/L
10-Dec-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*****	NULL	*****	NULL	NULL	*****	0.5	NL	NULL	*****	MG/L
08-Jan-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*****	NULL	*****	NULL	NULL	*****	0.2	NL	NULL	*****	MG/L
08-Feb-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*****	NULL	*****	NULL	NULL	*****	0.1	NL	NULL	*****	MG/L
11-Mar-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*****	NULL	*****	NULL	NULL	*****	0.1	NL	NULL	*****	MG/L
11-Apr-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*****	NULL	*****	NULL	NULL	*****	0.1	NL	NULL	*****	MG/L
14-Oct-2009	PHOSPHORUS, TOTAL (AS P) (CALENDAR YEAR)	NULL	*****	NULL	*****	NULL	NULL	*****	1.5	2.0	NULL	*****	MG/L
10-Jan-2011	PHOSPHORUS, TOTAL (AS P) (CALENDAR YEAR)	NULL	*****	NULL	*****	NULL	NULL	*****	1.2	2.0	NULL	*****	MG/L
14-Nov-2011	PHOSPHORUS, TOTAL (AS P) (CALENDAR YEAR)	NULL	*****	NULL	*****	NULL	NULL	*****	0.3	2.0	NULL	*****	MG/L
08-Jan-2013	PHOSPHORUS, TOTAL (AS P) (CALENDAR YEAR)	NULL	*****	NULL	*****	NULL	NULL	*****	0.4	2.0	NULL	*****	MG/L
10-Nov-2008	TKN (N-KJEL)	47.8	190	59.7	280	LBS/D	NULL	*****	1.2	3.0	1.5	4.5	MG/L
11-Dec-2008	TKN (N-KJEL)	30.5	190	30.6	280	LBS/D	NULL	*****	0.8	3.0	0.8	4.5	MG/L
12-Jan-2009	TKN (N-KJEL)	37.9	190	50.4	280	LBS/D	NULL	*****	0.9	3.0	1.1	4.5	MG/L
12-Feb-2009	TKN (N-KJEL)	48.6	190	59.1	280	LBS/D	NULL	*****	1.1	3.0	1.4	4.5	MG/L
10-Mar-2009	TKN (N-KJEL)	36.5	190	38.1	280	LBS/D	NULL	*****	0.9	3.0	0.9	4.5	MG/L
09-Apr-2009	TKN (N-KJEL)	36.3	190	44.3	280	LBS/D	NULL	*****	0.9	3.0	1.1	4.5	MG/L
11-May-2009	TKN (N-KJEL)	33.0	190	37.6	280	LBS/D	NULL	*****	0.8	3.0	0.8	4.5	MG/L
10-Jun-2009	TKN (N-KJEL)	38.9	190	42.8	280	LBS/D	NULL	*****	0.8	3.0	0.9	4.5	MG/L
10-Jul-2009	TKN (N-KJEL)	36.6	190	35.7	280	LBS/D	NULL	*****	0.8	3.0	0.8	4.5	MG/L
10-Aug-2009	TKN (N-KJEL)	32.5	190	38.8	280	LBS/D	NULL	*****	0.9	3.0	1.0	4.5	MG/L
14-Sep-2009	TKN (N-KJEL)	30.4	190	33.8	280	LBS/D	NULL	*****	0.8	3.0	0.9	4.5	MG/L
14-Oct-2009	TKN (N-KJEL)	29.5	190	29.4	280	LBS/D	NULL	*****	0.8	3.0	0.9	4.5	MG/L
09-Nov-2009	TKN (N-KJEL)	39.5	190	51.8	280	LBS/D	NULL	*****	1.0	3.0	1.4	4.5	MG/L
10-Dec-2009	TKN (N-KJEL)	44.8	190	53.8	280	LBS/D	NULL	*****	1.1	3.0	1.2	4.5	MG/L
11-Jan-2010	TKN (N-KJEL)	111.8	190	142.5	280	LBS/D	NULL	*****	2.1	3.0	2.4	4.5	MG/L
12-Feb-2010	TKN (N-KJEL)	142.9	190	229.8	280	LBS/D	NULL	*****	2.9	3.0	4.9	4.5	MG/L
11-Mar-2010	TKN (N-KJEL)	58.6	190	100.4	280	LBS/D	NULL	*****	1.1	3.0	1.6	4.5	MG/L
12-Apr-2010	TKN (N-KJEL)	63.7	190	94.9	280	LBS/D	NULL	*****	1.1	3.0	1.7	4.5	MG/L
10-May-2010	TKN (N-KJEL)	40.1	190	41.9	280	LBS/D	NULL	*****	0.8	3.0	0.9	4.5	MG/L
11-Jun-2010	TKN (N-KJEL)	46	190	57.6	280	LBS/D	NULL	*****	1.0	3.0	1.1	4.5	MG/L
09-Jul-2010	TKN (N-KJEL)	47.7	190	40.8	280	LBS/D	NULL	*****	1.1	3.0	0.9	4.5	MG/L
10-Aug-2010	TKN (N-KJEL)	48.2	190	72.1	280	LBS/D	NULL	*****	1.2	3.0	1.8	4.5	MG/L
10-Sep-2010	TKN (N-KJEL)	33.3	190	39.2	280	LBS/D	NULL	*****	0.8	3.0	0.9	4.5	MG/L
08-Oct-2010	TKN (N-KJEL)	28.3	190	30.1	280	LBS/D	NULL	*****	0.7	3.0	0.8	4.5	MG/L
12-Nov-2010	TKN (N-KJEL)	31.3	190	33.1	280	LBS/D	NULL	*****	0.8	3.0	0.8	4.5	MG/L
10-Dec-2010	TKN (N-KJEL)	30.9	190	31.0	280	LBS/D	NULL	*****	0.8	3.0	0.8	4.5	MG/L
10-Jan-2011	TKN (N-KJEL)	34.7	190	38.6	280	LBS/D	NULL	*****	0.9	3.0	1.0	4.5	MG/L
09-Feb-2011	TKN (N-KJEL)	37.4	190	39.6	280	LBS/D	NULL	*****	0.9	3.0	1.0	4.5	MG/L

09-Mar-2011	TKN (N-KJEL)	34.6	190	36.6	280	LBS/D	NULL	*****	0.8	3.0	0.8	4.5	MG/L
08-Apr-2011	TKN (N-KJEL)	76.9	190	153.5	280	LBS/D	NULL	*****	1.6	3.0	2.6	4.5	MG/L
10-May-2011	TKN (N-KJEL)	43.6	190	49.5	280	LBS/D	NULL	*****	1.0	3.0	1.1	4.5	MG/L
09-Jun-2011	TKN (N-KJEL)	40.2	190	43.1	280	LBS/D	NULL	*****	1.0	3.0	1.0	4.5	MG/L
12-Jul-2011	TKN (N-KJEL)	36.9	190	37.6	280	LBS/D	NULL	*****	1.0	3.0	1.0	4.5	MG/L
10-Aug-2011	TKN (N-KJEL)	32.2	190	35.2	280	LBS/D	NULL	*****	0.9	3.0	1.0	4.5	MG/L
09-Sep-2011	TKN (N-KJEL)	36.5	190	41.6	280	LBS/D	NULL	*****	1.0	3.0	1.2	4.5	MG/L
12-Oct-2011	TKN (N-KJEL)	34.9	190	42.0	280	LBS/D	NULL	*****	0.9	3.0	0.9	4.5	MG/L
14-Nov-2011	TKN (N-KJEL)	33.7	190	36.9	280	LBS/D	NULL	*****	0.8	3.0	0.9	4.5	MG/L
13-Dec-2011	TKN (N-KJEL)	37.5	190	39.8	280	LBS/D	NULL	*****	0.9	3.0	1.0	4.5	MG/L
12-Jan-2012	TKN (N-KJEL)	38.3	190	44.7	280	LBS/D	NULL	*****	0.9	3.0	1.0	4.5	MG/L
08-Feb-2012	TKN (N-KJEL)	38.3	190	40.0	280	LBS/D	NULL	*****	1.0	3.0	1.0	4.5	MG/L
09-Mar-2012	TKN (N-KJEL)	37.0	190	39.6	280	LBS/D	NULL	*****	1.0	3.0	1.1	4.5	MG/L
10-Apr-2012	TKN (N-KJEL)	38.6	190	40.2	280	LBS/D	NULL	*****	1.0	3.0	1.1	4.5	MG/L
09-May-2012	TKN (N-KJEL)	36.7	190	39.7	280	LBS/D	NULL	*****	1.0	3.0	1.1	4.5	MG/L
08-Jun-2012	TKN (N-KJEL)	44.8	190	58.8	280	LBS/D	NULL	*****	1.2	3.0	1.4	4.5	MG/L
10-Jul-2012	TKN (N-KJEL)	34.8	190	37.9	280	LBS/D	NULL	*****	0.9	3.0	1.0	4.5	MG/L
09-Aug-2012	TKN (N-KJEL)	30.0	190	30.8	280	LBS/D	NULL	*****	0.8	3.0	0.9	4.5	MG/L
10-Sep-2012	TKN (N-KJEL)	33.6	190	38.8	280	LBS/D	NULL	*****	1.0	3.0	1.1	4.5	MG/L
11-Oct-2012	TKN (N-KJEL)	33.9	190	38.0	280	LBS/D	NULL	*****	1.0	3.0	1.1	4.5	MG/L
09-Nov-2012	TKN (N-KJEL)	93.4	190	183.7	280	LBS/D	NULL	*****	2.5	3.0	5.0	4.5	MG/L
10-Dec-2012	TKN (N-KJEL)	32.6	190	36.0	280	LBS/D	NULL	*****	0.9	3.0	1.0	4.5	MG/L
08-Jan-2013	TKN (N-KJEL)	27.3	190	30.8	280	LBS/D	NULL	*****	0.7	3.0	0.9	4.5	MG/L
08-Feb-2013	TKN (N-KJEL)	26.6	190	25.8	280	LBS/D	NULL	*****	0.7	3.0	0.7	4.5	MG/L
11-Mar-2013	TKN (N-KJEL)	30.1	190	30.8	280	LBS/D	NULL	*****	0.8	3.0	0.8	4.5	MG/L
11-Apr-2013	TKN (N-KJEL)	38.0	190	42.8	280	LBS/D	NULL	*****	0.9	3.0	1.1	4.5	MG/L
10-Nov-2008	TSS	6.3	280	8.7	420	KG/D	NULL	*****	0.4	10	0.5	15	MG/L
11-Dec-2008	TSS	3.7	280	4.7	420	KG/D	NULL	*****	0.2	10	0.3	15	MG/L
12-Jan-2009	TSS	1.4	280	6.3	420	KG/D	NULL	*****	0.07	10	0.3	15	MG/L
12-Feb-2009	TSS	28.0	280	48.9	420	KG/D	NULL	*****	1.48	10	2.6	15	MG/L
10-Mar-2009	TSS	4.2	280	16.7	420	KG/D	NULL	*****	0.23	10	0.9	15	MG/L
09-Apr-2009	TSS	4.7	280	7.2	420	KG/D	NULL	*****	0.26	10	0.4	15	MG/L
11-May-2009	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Jun-2009	TSS	0.7	280	3.3	420	KG/D	NULL	*****	0.03	10	0.1	15	MG/L
10-Jul-2009	TSS	1.0	280	<QL	420	KG/D	NULL	*****	0.03	10	<QL	15	MG/L
10-Aug-2009	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
14-Sep-2009	TSS	4.4	280	8.0	420	KG/D	NULL	*****	0.3	10	0.5	15	MG/L
14-Oct-2009	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Nov-2009	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Dec-2009	TSS	4.6	280	12.9	420	KG/D	NULL	*****	0.2	10	0.6	15	MG/L
11-Jan-2010	TSS	43.3	280	64.1	420	KG/D	NULL	*****	1.9	10	2.6	15	MG/L
12-Feb-2010	TSS	15.4	280	23.0	420	KG/D	NULL	*****	0.7	10	1.1	15	MG/L
11-Mar-2010	TSS	0.14	280	0.54	420	KG/D	NULL	*****	0.04	10	0.14	15	MG/L

12-Apr-2010	TSS	30.01	280	77.37	420	KG/D	NULL	*****	1.06	10	2.60	15	MG/L
10-May-2010	TSS	3.40	280	6.50	420	KG/D	NULL	*****	0.20	10	0.30	15	MG/L
11-Jun-2010	TSS	.71	280	3.12	420	KG/D	NULL	*****	0.03	10	0.14	15	MG/L
09-Jul-2010	TSS	2.46	280	0.00	420	KG/D	NULL	*****	0.12	10	0.00	15	MG/L
10-Aug-2010	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Sep-2010	TSS	3.04	280	7.30	420	KG/D	NULL	*****	0.20	10	0.40	15	MG/L
08-Oct-2010	TSS	7.98	280	19.00	420	KG/D	NULL	*****	0.40	10	1.00	15	MG/L
12-Nov-2010	TSS	5.32	280	9.50	420	KG/D	NULL	*****	0.30	10	0.50	15	MG/L
10-Dec-2010	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Jan-2011	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Feb-2011	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Mar-2011	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
08-Apr-2011	TSS	72.52	280	253.70	420	KG/D	NULL	*****	3.12	10	10.54	15	MG/L
10-May-2011	TSS	24.54	280	51.08	420	KG/D	NULL	*****	1.17	10	2.43	15	MG/L
09-Jun-2011	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
12-Jul-2011	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Aug-2011	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Sep-2011	TSS	1.35	280	2.96	420	KG/D	NULL	*****	0.07	10	0.16	15	MG/L
12-Oct-2011	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
14-Nov-2011	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
13-Dec-2011	TSS	4.88	280	11.59	420	KG/D	NULL	*****	0.26	10	0.64	15	MG/L
12-Jan-2012	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
08-Feb-2012	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-Mar-2012	TSS	3.92	280	16.22	420	KG/D	NULL	*****	0.22	10	0.91	15	MG/L
10-Apr-2012	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
09-May-2012	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
08-Jun-2012	TSS	18.71	280	46.49	420	KG/D	NULL	*****	1.05	10	2.50	15	MG/L
10-Jul-2012	TSS	6.94	280	17.44	420	KG/D	NULL	*****	0.38	10	0.99	15	MG/L
09-Aug-2012	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
10-Sep-2012	TSS	1.09	280	4.83	420	KG/D	NULL	*****	0.07	10	0.16	15	MG/L
11-Oct-2012	TSS	4.26	280	18.27	420	KG/D	NULL	*****	0.27	10	1.17	15	MG/L
09-Nov-2012	TSS	84.67	280	159.55	420	KG/D	NULL	*****	4.89	10	9.63	15	MG/L
10-Dec-2012	TSS	1.12	280	4.79	420	KG/D	NULL	*****	0.07	10	0.30	15	MG/L
08-Jan-2013	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
08-Feb-2013	TSS	1.73	280	<QL	420	KG/D	NULL	*****	0.05	10	<QL	15	MG/L
11-Mar-2013	TSS	<QL	280	<QL	420	KG/D	NULL	*****	<QL	10	<QL	15	MG/L
11-Apr-2013	TSS	4.78	280	11.45	420	KG/D	NULL	*****	0.27	10	0.86	15	MG/L

DMR QA/QC

Permit #:VA0092282

Facility: Leesburg Town - Water Pollution Control Division

Rec'd	Parameter Description	QTY AVG	Lim Avg	QTY MAX	Lim Max	Quantity Unit Lim	CONC MIN	Lim Min	CONC AVG	Lim Avg	CONC MAX	Lim Max	Concentrati on Unit Lim
10-Nov-2008	PH	NULL	*****	NULL	*****	NULL	6.68	6.5	NULL	*****	7.00	8.5	SU
11-Dec-2008	PH	NULL	*****	NULL	*****	NULL	6.69	6.5	NULL	*****	7.00	8.5	SU
12-Jan-2009	PH	NULL	*****	NULL	*****	NULL	6.65	6.5	NULL	*****	6.93	8.5	SU
12-Feb-2009	PH	NULL	*****	NULL	*****	NULL	6.60	6.5	NULL	*****	7.14	8.5	SU
10-Mar-2009	PH	NULL	*****	NULL	*****	NULL	6.76	6.5	NULL	*****	7.11	8.5	SU
09-Apr-2009	PH	NULL	*****	NULL	*****	NULL	6.74	6.5	NULL	*****	7.06	8.5	SU
11-May-2009	PH	NULL	*****	NULL	*****	NULL	6.72	6.5	NULL	*****	6.98	8.5	SU
10-Jun-2009	PH	NULL	*****	NULL	*****	NULL	6.67	6.5	NULL	*****	7.02	8.5	SU
10-Jul-2009	PH	NULL	*****	NULL	*****	NULL	6.73	6.5	NULL	*****	7.04	8.5	SU
10-Aug-2009	PH	NULL	*****	NULL	*****	NULL	6.83	6.5	NULL	*****	7.09	8.5	SU
14-Sep-2009	PH	NULL	*****	NULL	*****	NULL	6.82	6.5	NULL	*****	7.06	8.5	SU
14-Oct-2009	PH	NULL	*****	NULL	*****	NULL	6.81	6.5	NULL	*****	7.02	8.5	SU
09-Nov-2009	PH	NULL	*****	NULL	*****	NULL	6.70	6.5	NULL	*****	7.01	8.5	SU
10-Dec-2009	PH	NULL	*****	NULL	*****	NULL	6.63	6.5	NULL	*****	6.98	8.5	SU
11-Jan-2010	PH	NULL	*****	NULL	*****	NULL	6.61	6.5	NULL	*****	6.85	8.5	SU
12-Feb-2010	PH	NULL	*****	NULL	*****	NULL	6.51	6.5	NULL	*****	7.02	8.5	SU
11-Mar-2010	PH	NULL	*****	NULL	*****	NULL	6.70	6.5	NULL	*****	6.93	8.5	SU
12-Apr-2010	PH	NULL	*****	NULL	*****	NULL	6.67	6.5	NULL	*****	6.83	8.5	SU
10-May-2010	PH	NULL	*****	NULL	*****	NULL	6.67	6.5	NULL	*****	6.87	8.5	SU
11-Jun-2010	PH	NULL	*****	NULL	*****	NULL	6.67	6.5	NULL	*****	6.94	8.5	SU
09-Jul-2010	PH	NULL	*****	NULL	*****	NULL	6.72	6.5	NULL	*****	6.96	8.5	SU
10-Aug-2010	PH	NULL	*****	NULL	*****	NULL	6.76	6.5	NULL	*****	6.96	8.5	SU
10-Sep-2010	PH	NULL	*****	NULL	*****	NULL	6.64	6.5	NULL	*****	6.95	8.5	SU
08-Oct-2010	PH	NULL	*****	NULL	*****	NULL	6.66	6.5	NULL	*****	7.01	8.5	SU
12-Nov-2010	PH	NULL	*****	NULL	*****	NULL	6.70	6.5	NULL	*****	7.07	8.5	SU
10-Dec-2010	PH	NULL	*****	NULL	*****	NULL	6.77	6.5	NULL	*****	7.00	8.5	SU
10-Jan-2011	PH	NULL	*****	NULL	*****	NULL	6.65	6.5	NULL	*****	6.94	8.5	SU
09-Feb-2011	PH	NULL	*****	NULL	*****	NULL	6.77	6.5	NULL	*****	7.10	8.5	SU
09-Mar-2011	PH	NULL	*****	NULL	*****	NULL	6.80	6.5	NULL	*****	7.01	8.5	SU
08-Apr-2011	PH	NULL	*****	NULL	*****	NULL	6.66	6.5	NULL	*****	6.96	8.5	SU

10-May-2011	PH	NULL	*****	NULL	*****	NULL	6.69	6.5	NULL	*****	6.95	8.5	SU
09-Jun-2011	PH	NULL	*****	NULL	*****	NULL	6.70	6.5	NULL	*****	6.91	8.5	SU
12-Jul-2011	PH	NULL	*****	NULL	*****	NULL	6.72	6.5	NULL	*****	7.12	8.5	SU
10-Aug-2011	PH	NULL	*****	NULL	*****	NULL	6.83	6.5	NULL	*****	7.06	8.5	SU
09-Sep-2011	PH	NULL	*****	NULL	*****	NULL	6.69	6.5	NULL	*****	7.09	8.5	SU
12-Oct-2011	PH	NULL	*****	NULL	*****	NULL	6.66	6.5	NULL	*****	7.03	8.5	SU
14-Nov-2011	PH	NULL	*****	NULL	*****	NULL	6.80	6.5	NULL	*****	7.28	8.5	SU
13-Dec-2011	PH	NULL	*****	NULL	*****	NULL	6.80	6.5	NULL	*****	7.09	8.5	SU
12-Jan-2012	PH	NULL	*****	NULL	*****	NULL	6.71	6.5	NULL	*****	7.09	8.5	SU
08-Feb-2012	PH	NULL	*****	NULL	*****	NULL	6.81	6.5	NULL	*****	7.00	8.5	SU
09-Mar-2012	PH	NULL	*****	NULL	*****	NULL	6.74	6.5	NULL	*****	6.93	8.5	SU
10-Apr-2012	PH	NULL	*****	NULL	*****	NULL	6.69	6.5	NULL	*****	6.87	8.5	SU
09-May-2012	PH	NULL	*****	NULL	*****	NULL	6.73	6.5	NULL	*****	6.89	8.5	SU
08-Jun-2012	PH	NULL	*****	NULL	*****	NULL	6.68	6.5	NULL	*****	6.91	8.5	SU
10-Jul-2012	PH	NULL	*****	NULL	*****	NULL	6.71	6.5	NULL	*****	6.91	8.5	SU
09-Aug-2012	PH	NULL	*****	NULL	*****	NULL	6.72	6.5	NULL	*****	6.95	8.5	SU
10-Sep-2012	PH	NULL	*****	NULL	*****	NULL	6.81	6.5	NULL	*****	6.98	8.5	SU
11-Oct-2012	PH	NULL	*****	NULL	*****	NULL	6.85	6.5	NULL	*****	7.05	8.5	SU
09-Nov-2012	PH	NULL	*****	NULL	*****	NULL	6.60	6.5	NULL	*****	7.02	8.5	SU
10-Dec-2012	PH	NULL	*****	NULL	*****	NULL	6.69	6.5	NULL	*****	6.92	8.5	SU
08-Jan-2013	PH	NULL	*****	NULL	*****	NULL	6.67	6.5	NULL	*****	6.88	8.5	SU
08-Feb-2013	PH	NULL	*****	NULL	*****	NULL	6.63	6.5	NULL	*****	6.85	8.5	SU
11-Mar-2013	PH	NULL	*****	NULL	*****	NULL	6.63	6.5	NULL	*****	6.85	8.5	SU
11-Apr-2013	PH	NULL	*****	NULL	*****	NULL	6.67	6.5	NULL	*****	6.86	8.5	SU
									90th	7			
									10th	6.7			

ATTACHMENT 11

Mixing Analysis for 7.5 MGD Facility

Mixing Zone Predictions for

Leesburg WPCF

Effluent Flow = 7.5 MGD
Stream 7Q10 = 627.4 MGD
Stream 30Q10 = 740.8 MGD
Stream 1Q10 = 546.9 MGD
Stream slope = 0.0002 ft/ft
Stream width = 1000 ft
Bottom scale = 3
Channel scale = 1

Low Flows

Mixing Zone Predictions @ 7Q10

Depth = 2.6732 ft
Length = 419302.99 ft
Velocity = .3677 ft/sec
Residence Time = 13.1998 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 15.15% of the 7Q10 is used.

Mixing Zone Predictions @ 30Q10

Depth = 2.9508 ft
Length = 386013.78 ft
Velocity = .3926 ft/sec
Residence Time = 11.3812 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 17.57% of the 30Q10 is used.

Mixing Zone Predictions @ 1Q10

Depth = 2.4639 ft
Length = 448900.18 ft
Velocity = .3483 ft/sec
Residence Time = 357.9974 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than .28% of the 1Q10 is used.

Mixing Zone Predictions for

Leesburg WPCF

Effluent Flow = 7.5 MGD
Stream 7Q10 = 67385.0 MGD
Stream 30Q10 = 31616.3 MGD
Stream 1Q10 = 137021.7 MGD
Stream slope = 0.0002 ft/ft
Stream width = 1000 ft
Bottom scale = 3
Channel scale = 1

High Flows

Mixing Zone Predictions @ 7Q10

Depth = 45.3659 ft
Length = 37512.2 ft
Velocity = 2.2996 ft/sec
Residence Time = .1888 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = 28.451 ft
Length = 56513.8 ft
Velocity = 1.7206 ft/sec
Residence Time = .3802 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = 70.7204 ft
Length = 25138.32 ft
Velocity = 2.9994 ft/sec
Residence Time = 2.3281 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 42.95% of the 1Q10 is used.

ATTACHMENT 12

Mixing Analysis
for
10 MGD Facility

Mixing Zone Predictions for

Leesburg WPCF

Effluent Flow = 10 MGD
Stream 7Q10 = 627.4 MGD
Stream 30Q10 = 740.8 MGD
Stream 1Q10 = 546.9 MGD
Stream slope = 0.0002 ft/ft
Stream width = 1000 ft
Bottom scale = 3
Channel scale = 1

Low Flow

Mixing Zone Predictions @ 7Q10

Depth = 2.6795 ft
Length = 418474.99 ft
Velocity = .3682 ft/sec
Residence Time = 13.1531 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 15.21% of the 7Q10 is used.

Mixing Zone Predictions @ 30Q10

Depth = 2.9567 ft
Length = 385366.96 ft
Velocity = .3931 ft/sec
Residence Time = 11.3471 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 17.63% of the 30Q10 is used.

Mixing Zone Predictions @ 1Q10

Depth = 2.4706 ft
Length = 447886.64 ft
Velocity = .3489 ft/sec
Residence Time = 356.5486 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than .28% of the 1Q10 is used.

Mixing Zone Predictions for

Leesburg WPCF

Effluent Flow = 10 MGD
Stream 7Q10 = 67385.0 MGD
Stream 30Q10 = 31616.3 MGD
Stream 1Q10 = 137021.7 MGD
Stream slope = 0.0002 ft/ft
Stream width = 1000 ft
Bottom scale = 3
Channel scale = 1

High Flow

Mixing Zone Predictions @ 7Q10

Depth = 45.3669 ft
Length = 37511.42 ft
Velocity = 2.2996 ft/sec
Residence Time = .1888 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = 28.4524 ft
Length = 56511.41 ft
Velocity = 1.7207 ft/sec
Residence Time = .3801 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = 70.7212 ft
Length = 25138.07 ft
Velocity = 2.9994 ft/sec
Residence Time = 2.328 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 42.95% of the 1Q10 is used.

ATTACHMENT 13

Total Residual Chlorine Limitation Derivation
for
7.5 MGD

7/9/2014 3:15:02 PM

Facility = Town of Leesburg - 7.5 MGD

Chemical = Chlorine

Chronic averaging period = 4

WLAa = 0.023

WLAc = 0.15

Q.L. = 0.1

samples/mo. = 110

samples/wk. = 28

Summary of Statistics:

observations = 1

Expected Value = 20

Variance = 144

C.V. = 0.6

97th percentile daily values = 48.6683

97th percentile 4 day average = 33.2758

97th percentile 30 day average = 24.1210

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 0.023

Average Weekly limit = 1.16163604418238E-02

Average Monthly Limit = 1.04688072858889E-02

The data are:

ATTACHMENT 14

Total Residual Chlorine Limitation Derivation
for
10 MGD

7/9/2014 3:16:20 PM

Facility = Town of Leesburg - 10 MGD

Chemical = Chlorine

Chronic averaging period = 4

WLAa = 0.022

WLAc = 0.12

Q.L. = 0.1

samples/mo. = 110

samples/wk. = 28

Summary of Statistics:

observations = 1

Expected Value = 20

Variance = 144

C.V. = 0.6

97th percentile daily values = 48.6683

97th percentile 4 day average = 33.2758

97th percentile 30 day average = 24.1210

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 0.022

Average Weekly limit = 1.11113012921793E-02

Average Monthly Limit = 1.00136417517198E-02

The data are:

ATTACHMENT 15

Summary of Grant Agreements & Performance Expectations

WQIF POINT SOURCE PROGRAM GRANT APPLICATION REVIEW WORKSHEET

Applicant: Town of Leesburg

Plant: Leesburg STP

Is Proposal for Nutrient Reduction at a Publicly Owned Treatment Works? Yes

Grant Request: \$3,000,000

Grant %: 50%

Total Project Cost: \$6,000,000

Brief Project Description: Retrofit existing 4.85 MGD facility with BNR. Plant is currently capable of seasonal nitrification.

I. Magnitude of Nutrient Reductions:

- a. Plant Design Flow = 4.85 MGD
- b. Expected TN Performance Level (annual avg) = 8.0 mg/l
- c. Estimated TN Removal (at Design Flow over 20 years) = 1,624,027 lbs.
- d. Expected TP Performance Level (annual avg) = N/A (2.0 mg/l permit limit)
- e. Estimated TP Removal (at Design Flow over 20 years) = N/A
- f. Est. Total Nutrients (T+N) Removed over Design Life = 1,624,027 lbs.

II. Cost-Effectiveness:

- a. Grant Request/Total lbs Nutrients (N+P) Removed = 1.85 \$/lb

III. Readiness-to-Proceed:

- a. Date Plans and Specifications to be Submitted: Jan. 1999
- b. Date to Award Construction Contract: July 1999
- c. Construction Complete: July 2001

IV. Additional Factors to Consider:

- a. WQIF Grant Funds needed in FY 98 (Jul 97 - Jun 98) = \$100,000 (assume design 50% complete)
- b. FY 98 RLF Application (Amount)? No
- c. Plant Specified for Retrofit in Tributary Strategy? Yes
- d. Source of Local Share: Capital reserve and connection fees
- e. Other: Plant operates under a Maryland discharge permit, which required an evaluation of the feasibility to install BNR, and also contains seasonal ammonia limits (3 mg/l May-Oct.) and TP limits (2 mg/l). The results of the BNR evaluation, done by Dr. Randall using CBP funds, will be used as the starting point for the system design. RFP for design services issued 9/12/97.

STAFF RECOMMENDATION: Consider for FY 98 funding. Confirm eligible project scope and expected capital expenditures for FY 98.

WQIF Grant Agreements and Performance Expectations; March 11, 2008

Grantee/Project ID	DEQ Region	1998-2000 BNR Projects			2007-2009 NRT Projects			Note:
		Grant Number	TN Conc. *	TP Conc. *	Grant Number	TN Conc. *	TP Conc. *	
Alexandria	NRO	440-S-98-10	8.0					a
ACSA- Fishersville	VRO				440-S-07-07	4.0	0.30	
ACSA -Middle River Reg STP	VRO	440-S-98-11	8.0	1.5	440-S-07-06	4.0	0.30	
ACSA -Stuarts Draft	VRO	440-S-99-05	8.0	1.5				
Arlington Co. WPCF	NRO	440-S-98-08	8.0		440-S-07-10	3.0	0.18	
Chesterfield-Falling Creek	PRO				440-S-08-21	5.0	0.50	a
Chesterfield-Proctor's Creek	PRO	440-S-00-06	8.0		440-S-08-20	5.0	0.50	a
Colonial Beach STP	PRO				440-S-08-08	3.0	0.18	
Culpeper WWTP	NRO				440-S-07-18	3.0	0.30	
Dale Serv. Corp #1	NRO	440-S-99-01	8.0		440-S-07-11	3.0	0.18	
Dale Serv. Corp #8	NRO	440-S-99-02	8.0		440-S-07-12	3.0	0.18	
Fairfax: Noman Cole	NRO	440-S-98-06	8.0		440-S-08-02	5.0		b
Farmville	SCRO				440-S-08-01	5.0	0.30	b
FCWSA-Remington	NRO	440-S-00-02	8.0	1.5				
FWSA-Opequon	VRO	440-S-98-04	8.0	1.5	440-S-08-11	3.0	0.30	
FWSA-Parkins Mill	VRO				440-S-07-01	4.0	0.30	
Hanover-Totopotomoy	PRO	440-S-00-03	8.0					
Henrico WWTP	PRO	440-S-00-07	8.0					
Hopewell RWTF	PRO	440-S-00-01	21.0					
HRRSA-North River	VRO	440-S-98-05	8.0	1.5	440-S-07-21	3.7	0.30	
HRSD-Army Base	TRO				440-S-08-17	5.0	1.00	c
King George-Dahlgren	NRO				440-S-08-04	4.0	0.30	c
King George-FVB	NRO				440-S-08-03	6.5	1.00	c
Leesburg	NRO	440-S-98-07	8.0					
LCSA-Broad Run	NRO				440-S-08-09	4.0	0.10	b
Luray	VRO				440-S-08-06	4.0	0.30	c
Middletown	VRO				440-S-08-13	8.0	1.00	
MSA-Lexington/Rockbridge	VRO				440-S-07-16	6.0	0.30	
Mt. Jackson STP	VRO				440-S-07-03	4.0	0.30	
Onancock WWTP	TRO				440-S-07-08	4.0	0.30	
Orange STP	NRO				440-S-07-17	4.0	0.30	
PWCSA-Mooney	NRO	440-S-98-03	8.0		440-S-08-15	3.0	0.18	
Purcellville-Basham Simms	NRO	440-S-99-03	8.0	1.5	440-S-07-05	4.0	0.30	
Richmond WWTP	PRO				440-S-08-19	8.0	1.00	b
RWSA-Moores Creek	VRO				440-S-07-19	5.0	0.30	
Spotsylvania-Massaponax	NRO	440-S-00-05	8.0					
Stafford Co. -Aquia; Phase I	NRO	440-S-98-09	8.0		440-S-08-07	8.0	0.18	
Stafford Co. -Lil Falls Run	NRO	440-S-00-04	8.0					
Tappahannock WWTP	PRO				440-S-08-10	4.0	0.30	
Warrenton STP	NRO				440-S-07-04	4.0	0.30	
Warsaw	PRO				440-S-08-05	4.0	0.30	
Waynesboro STP	VRO				440-S-07-22	3.0	0.30	
Woodstock STP	VRO				440-S-07-02	4.0	0.30	

* all values are expressed as annual average concentrations (mg/l)

a = draft agreement in progress

b = sent to owner for signature

c = at public notice; effective soon

ATTACHMENT 16

Whole Effluent Toxicity Test Result Summaries

BIOMONITORING RESULTS

Town of Leesburg Water Pollution Control Facility (VA0092282)

Table 1
Summary of Toxicity Test Results for Outfall 001

TEST DATE	TEST TYPE/ORGANISM	48-h LC ₅₀ (%)	IC ₂₅ (%)	NOEC (%)	% SURV	TU _c	LAB	REMARKS
08/18/09	Chronic <i>C. dubia</i>	>100	>100	100 SR	100	1	Free-Col	1 st annual
08/18/09	Chronic <i>P. promelas</i>	>100	>100	100 SG	100	1		
11/09/10	Chronic <i>C. dubia</i>	>100	>100	100 SR	100	1	Free-Col	2 nd annual
11/09/10	Chronic <i>P. promelas</i>	>100	>100	100 SG	100	1		
10/18/11	Chronic <i>C. dubia</i>	>100	>100	100 SR	100	1	CBI	3 rd annual
10/18/11	Chronic <i>P. promelas</i>	>100	>100	100 SG	100	1		
09/25/12	Chronic <i>C. dubia</i>	>100	>100	100 SR	100	1	CBI	4 th annual
09/25/12	Chronic <i>P. promelas</i>	>100	>100	100 SG	98	1		

FOOTNOTES:

A **boldfaced** LC50 or NOEC value indicates that the test failed the toxicity criterion.

ABBREVIATIONS:

S – Survival; R – Reproduction; G – Growth
% SURV – Percent survival in 100% effluent
CBI – Coastal Bioanalysts, Inc.

ATTACHMENT 17

Statistical Analysis of Previous WET Results

3/27/2014 4:29:15 PM

Facility = Town of Leesburg WPCF
Chemical = Chronic Toxicity - C. dubia
Chronic averaging period = 4
WLAa = 3.6
WLAc = 13.7
Q.L. = 1
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 4
Expected Value = 1
Variance = .36
C.V. = 0.6
97th percentile daily values = 2.43341
97th percentile 4 day average = 1.66379
97th percentile 30 day average = 1.20605
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

1
1
1
1

3/27/2014 4:29:37 PM

Facility = Town of Leesburg WPCF
Chemical = Chronic Toxicity - P. promelas
Chronic averaging period = 4
WLAa = 3.6
WLAc = 13.7
Q.L. = 1
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 4
Expected Value = 1
Variance = .36
C.V. = 0.6
97th percentile daily values = 2.43341
97th percentile 4 day average = 1.66379
97th percentile 30 day average = 1.20605
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

1
1
1
1

ATTACHMENT 18

Calculated Compliance Endpoints for WET Requirements
for
7.5 MGD Facility

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Spreadsheet for determination of WET test endpoints or WET limits														
2															
3															
4	Excel 97			Acute Endpoint/Permit Limit			Use as LC ₅₀ in Special Condition, as TUa on DMR								
5	Revision Date: 12/13/13														
6	File: WETLIM10.xls			ACUTE 100% = NOAEC			LC ₅₀ = NA			% Use as			NA TUa		
7	(MIX.EXE required also)														
8				ACUTE WLA _a			0.3612528			Note: Inform the permittee that if the mean of the data exceeds this TUa: 1.0 a limit may result using STATS.EXE					
9															
10				Chronic Endpoint/Permit Limit			Use as NOEC in Special Condition, as TUC on DMR								
11				CHRONIC 3.61252809 TU _c			NOEC =			28 % Use as			3.57 TU _c		
12				BOTH* 3.61252809 TU _c			NOEC =			28 % Use as			3.57 TU _c		
13				AML 3.61252809 TU _c			NOEC =			28 % Use as			3.57 TU _c		
14	Enter data in the cells with blue type:														
15	Entry Date: 03/27/14			ACUTE WLA _{a,c} 3.612528			Note: Inform the permittee that if the mean								
16	Facility Name: Leesburg WPCF			CHRONIC WLA _c 13.67348			of the data exceeds this TUC: 1.48454917								
17	VPDES Number: VA0092282			* Both means acute expressed as chronic			a limit may result using STATS.EXE								
18	Outfall Number: 1														
19				% Flow to be used from MIX.EXE			Diffuser /modeling study?								
20	Plant Flow: 7.6 MGD						Enter Y/N n								
21	Acute 1Q10: 546.9 MGD			0.28 %			Acute 1:1								
22	Chronic 7Q10: 627.4 MGD			15.15 %			Chronic 1:1								
23	Are data available to calculate CV? (Y/N)			N (Minimum of 10 data points, same species, needed)			Go to Page 2								
24	Are data available to calculate ACR? (Y/N)			N (NOEC<LC50, do not use greater/less than data)			Go to Page 3								
25															
26	IWC _a 83.04433903 %			Plant flow/plant flow + 1Q10			NOTE: If the IWC _a is >33%, specify the								
27	IWC _c 7.31342716 %			Plant flow/plant flow + 7Q10			NOAEC = 100% test/endpoint for use								
28															
29	Dilution, acute 1.204176			100/IWC _a											
30	Dilution, chronic 13.67348			100/IWC _c											
31															
32	WLA _a 0.3612528			Instream criterion (0.3 TUa) X's Dilution, acute											
33	WLA _c 13.67348			Instream criterion (1.0 TUC) X's Dilution, chronic											
34	WLA _{a,c} 3.612528			ACR X's WLA _a - converts acute WLA to chronic units											
35															
36	ACR -acute/chronic ratio 10			LC50/NOEC (Default is 10 - if data are available, use tables Page 3)											
37	CV-Coefficient of variation 0.6			Default of 0.6 - if data are available, use tables Page 2)											
38	Constants eA 0.4109447			Default = 0.41											
39	eB 0.6010373			Default = 0.60											
40	eC 2.4334175			Default = 2.43											
41	eD 2.4334175			Default = 2.43 (1 samp)											
42				No. of sample 1			**The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTA _{a,c} and MDL using it are driven by the ACR.								
43	LTA _{a,c} 1.484549235			WLA _{a,c} X's eA											
44	LTA _c 8.218271501			WLA _c X's eB											
45	MDL** with LTA _{a,c} 3.612528089			TU _c NOEC = 27.681446 (Protects from acute/chronic toxicity)			Rounded NOEC's			%					
46	MDL** with LTA _c 19.99848569			TU _c NOEC = 5.000379 (Protects from chronic toxicity)			NOEC =			28 %					
47	AML with lowest LTA 3.612528089			TU _c NOEC = 27.681446 Lowest LTA X's eD			NOEC =			6 %					
48															
49															
50	IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU TO TU _a														
51															
52	MDL with LTA _{a,c} 0.361252809			TU _a LC50 = 276.814457 %			Use NOAEC=100%			Rounded LC50's					
53	MDL with LTA _c 1.999848569			TU _a LC50 = 50.003786 %						LC50 = NA %					
54							LC50 = 51								
55															
56															

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
302	Page 2 - Follow the directions to develop a site specific CV (coefficient of variation)															
303	IF YOU HAVE AT LEAST 10 DATA POINTS THAT						Vertebrate		Invertebrate							
304	ARE QUANTIFIABLE (NOT "<" OR ">")						IC ₂₅ Data		IC ₂₅ Data							
305	FOR A SPECIES, ENTER THE DATA IN EITHER						or		or							
306	COLUMN "G" (VERTEBRATE) OR COLUMN						LC ₅₀ Data		LN of data		LC ₅₀ Data		LN of data			
307	"J" (INVERTEBRATE). THE CV WILL BE						*****				*****					
308	PICKED UP FOR THE CALCULATIONS						1				1					
309	BELOW. THE DEFAULT VALUES FOR eA,						2				2					
310	eB, AND eC WILL CHANGE IF THE CV IS						3				3					
311	ANYTHING OTHER THAN 0.6.						4				4					
312							5				5					
313							6				6					
314							7				7					
315	Coefficient of Variation for effluent tests						8				8					
316							9				9					
317	CV = 0.6 (Default 0.6)						10				10					
318							11				11					
319	$\delta^2 = 0.3074847$						12				12					
320	$\delta = 0.554513029$						13				13					
321							14				14					
322	Using the log variance to develop eA						15				15					
323	(P. 100, step 2a of TSD)						16				16					
324	Z = 1.881 (97% probability stat from table)						17				17					
325	A = -0.88929666						18				18					
326	eA = 0.410944686						19				19					
327							20				20					
328	Using the log variance to develop eB															
329	(P. 100, step 2b of TSD)						St Dev		NEED DATA		St Dev		NEED DATA		NEED DATA	
330	$\delta_A^2 = 0.096177696$						Mean		0		0 Mean		0		0	
331	$\delta_A = 0.293560379$						Variance		0		0.000000		Variance		0 0.000000	
332	B = -0.50909823						CV		0		CV		0			
333	eB = 0.601037335															
334																
335	Using the log variance to develop eC															
336	(P. 100, step 4a of TSD)															
337																
338	$\delta^2 = 0.3074847$															
339	$\delta = 0.554513029$															
340	C = 0.889296658															
341	eC = 2.433417525															
342																
343	Using the log variance to develop eD															
344	(P. 100, step 4b of TSD)															
345	n = 1 This number will most likely stay as "1", for 1 sample/month.															
346	$\delta_n^2 = 0.3074847$															
347	$\delta_n = 0.554513029$															
348	D = 0.889296658															
349	eD = 2.433417525															
350																

Page 3 - Follow directions to develop a site specific ACR (Acute to Chronic Ratio)

To determine Acute/Chronic Ratio (ACR), insert usable data below. Usable data is defined as valid paired test results, acute and chronic, tested at the same temperature, same species. The chronic NOEC must be less than the acute LC₅₀, since the ACR divides the LC₅₀ by the NOEC. LC₅₀'s >100% should not be used.

Table 1. ACR using Vertebrate data

Set #	LC ₅₀	NOEC	Test ACR	Logarithm	Geomean	Antilog	ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA

ACR for vertebrate data: 0

Table 1. Result:

Vertebrate ACR 0

Table 2. Result:

Invertebrate ACR 0

Lowest ACR Default to 10

Table 2. ACR using invertebrate data

Set #	LC ₅₀	NOEC	Test ACR	Logarithm	Geomean	Antilog	ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA

ACR for vertebrate data: 0

Convert LC₅₀'s and NOEC's to Chronic TU's

for use in WLA.EXE

ACR used: 10

Table 3.

Enter LC ₅₀	TUc	Enter NOEC	TUc
1	NO DATA		NO DATA
2	NO DATA		NO DATA
3	NO DATA		NO DATA
4	NO DATA		NO DATA
5	NO DATA		NO DATA
6	NO DATA		NO DATA
7	NO DATA		NO DATA
8	NO DATA		NO DATA
9	NO DATA		NO DATA
10	NO DATA		NO DATA
11	NO DATA		NO DATA
12	NO DATA		NO DATA
13	NO DATA		NO DATA
14	NO DATA		NO DATA
15	NO DATA		NO DATA
16	NO DATA		NO DATA
17	NO DATA		NO DATA
18	NO DATA		NO DATA
19	NO DATA		NO DATA
20	NO DATA		NO DATA

If WLA.EXE determines that an acute limit is needed, you need to convert the TUc answer you get to TUa and then an LC50.

enter it here:

NO DATA

%LC₅₀

NO DATA

TUa

DILUTION SERIES TO RECOMMEND

Table 4.

	Monitoring % Effluent	TUc	Limit % Effluent	TUc
Dilution series based on data mean	67.4	1.484549		
Dilution series to use for limit			28	3.5714286
Dilution factor to recommend:	0.8207345		0.5291503	
Dilution series to recommend:	100.0	1.00	100.0	1.00
	82.1	1.22	52.9	1.89
	67.4	1.48	28.0	3.57
	55.3	1.81	14.8	6.75
	45.37	2.20	7.8	12.76
Extra dilutions if needed	37.24	2.69	4.1	24.10
	30.66	3.27	2.2	45.55

Cell: I9

Comment: This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: K18

Comment: This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: J22

Comment: Remember to change the "N" to "Y" if you have ratios entered, otherwise, they won't be used in the calculations.

Cell: C40

Comment: If you have entered data to calculate an ACR on page 3, and this is still defaulted to "10", make sure you have selected "Y" in cell E21

Cell: C41

Comment: If you have entered data to calculate an effluent specific CV on page 2, and this is still defaulted to "0.6", make sure you have selected "Y" in cell E20

Cell: L48

Comment: See Row 151 for the appropriate dilution series to use for these NOEC's

Cell: G62

Comment:
Vertebrates are:
Pimephales promelas
Oncorhynchus mykiss
Cyprinodon variegatus

Cell: J62

Comment:
Invertebrates are:
Ceriodaphnia dubia
Mysidopsis bahia

Cell: C117

Comment: Vertebrates are:

Pimephales promelas
Cyprinodon variegatus

Cell: M119

Comment: The ACR has been picked up from cell C34 on Page 1. If you have paired data to calculate an ACR, enter it in the tables to the left, and make sure you have a "Y" in cell E21 on Page 1. Otherwise, the default of 10 will be used to convert your acute data.

Cell: M121

Comment: If you are only concerned with acute data, you can enter it in the NOEC column for conversion and the number calculated will be equivalent to the TUa. The calculation is the same: $100/\text{NOEC} = \text{TUc}$ or $100/\text{LC50} = \text{TUa}$.

Cell: C138

Comment: Invertebrates are:

Ceriodaphnia dubia
Mysidopsis bahia

ATTACHMENT 19

Calculated Compliance Endpoints for WET Requirements
for
10 MGD Facility

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
99																
100	Page 2 - Follow the directions to develop a site specific CV (coefficient of variation)															
101																
102	IF YOU HAVE AT LEAST 10 DATA POINTS THAT						Vertebrate		Invertebrate							
103	ARE QUANTIFIABLE (NOT "<" OR ">")						IC ₂₅ Data		IC ₂₅ Data							
104	FOR A SPECIES, ENTER THE DATA IN EITHER						or		or							
105	COLUMN "G" (VERTEBRATE) OR COLUMN						LC ₅₀ Data		LN of data		LC ₅₀ Data		LN of data			
106	"J" (INVERTEBRATE). THE 'CV' WILL BE						*****		*****							
107	PICKED UP FOR THE CALCULATIONS						1		1							
108	BELOW. THE DEFAULT VALUES FOR eA,						2		2							
109	eB, AND eC WILL CHANGE IF THE 'CV' IS						3		3							
110	ANYTHING OTHER THAN 0.6.						4		4							
111							5		5							
112							6		6							
113							7		7							
114	Coefficient of Variation for effluent tests						8		8							
115							9		9							
116	CV = 0.6 (Default 0.6)						10		10							
117							11		11							
118	$\delta^2 = 0.3074847$						12		12							
119	$\delta = 0.554513029$						13		13							
120							14		14							
121	Using the log variance to develop eA						15		15							
122	(P. 100, step 2a of TSD)						16		16							
123	Z = 1.881 (97% probability stat from table)						17		17							
124	A = -0.88929666						18		18							
125	eA = 0.410944686						19		19							
126							20		20							
127	Using the log variance to develop eB															
128	(P. 100, step 2b of TSD)						St Dev		NEED DATA		NEED DATA		St Dev		NEED DATA/NEED DATA	
129	$\delta_4^2 = 0.086177696$						Mean		0		0		Mean		0	
130	$\delta_4 = 0.293560379$						Variance		0		0.000000		Variance		0 0.000000	
131	B = -0.50909823						CV		0		CV		0			
132	eB = 0.601037335															
133																
134	Using the log variance to develop eC															
135	(P. 100, step 4a of TSD)															
136																
137	$\delta^2 = 0.3074847$															
138	$\delta = 0.554513029$															
139	C = 0.889296658															
140	eC = 2.433417525															
141																
142	Using the log variance to develop eD															
143	(P. 100, step 4b of TSD)															
144	n = 1 This number will most likely stay as "1", for 1 sample/month.															
145	$\delta_n^2 = 0.3074847$															
146	$\delta_n = 0.554513029$															
147	D = 0.889296658															
148	eD = 2.433417525															
149																

Page 3 - Follow directions to develop a site specific ACR (Acute to Chronic Ratio)

To determine Acute/Chronic Ratio (ACR), insert usable data below. Usable data is defined as valid paired test results, acute and chronic, tested at the same temperature, same species. The chronic NOEC must be less than the acute LC₅₀, since the ACR divides the LC₅₀ by the NOEC. LC₅₀'s >100% should not be used.

Table 1. ACR using Vertebrate data

Convert LC₅₀'s and NOEC's to Chronic TU's

for use in WLA.EXE

ACR used:	10
-----------	----

Table 3.

[illegible]

	Enter LC ₅₀	TUC	Enter NOEC	TUC
1		NO DATA		NO DATA
2		NO DATA		NO DATA
3		NO DATA		NO DATA
4		NO DATA		NO DATA
5		NO DATA		NO DATA
6		NO DATA		NO DATA
7		NO DATA		NO DATA
8		NO DATA		NO DATA
9		NO DATA		NO DATA
10		NO DATA		NO DATA
11		NO DATA		NO DATA
12		NO DATA		NO DATA
13		NO DATA		NO DATA
14		NO DATA		NO DATA
15		NO DATA		NO DATA
16		NO DATA		NO DATA
17		NO DATA		NO DATA
18		NO DATA		NO DATA
19		NO DATA		NO DATA
20		NO DATA		NO DATA

ACR for vertebrate data:		0
--------------------------	--	---

Table 1. Result:

Vertebrate ACR

Table 2. Result:

Invertebrate ACR

0

Lowest ACR

Default to 10

Table 2. ACR using Invertebrate data

[illegible]

ACR for vertebrate data:		
--------------------------	--	--

DILUTION SERIES TO RECOMMEND

Table 4.

Table 4.		Monitoring % Effluent	TUc	Limit % Effluent	TUc
Dilution series based on data mean		70.3	1.42162		
Dilution series to use for limit				29	3.4482759
Dilution factor to recommend:		0.838703		0.5385165	
Dilution series to recommend:		100.0	1.00	100.0	1.00
		83.9	1.19	53.9	1.86
		70.3	1.42	29.0	3.45
		59.0	1.70	15.6	6.40
		49.48	2.02	8.4	11.89
Extra dilutions if needed		41.50	2.41	4.5	22.08
		34.81	2.87	2.4	41.00

Cell: I9

Comment: This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: K18

Comment: This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: J22

Comment: Remember to change the "N" to "Y" if you have ratios entered, otherwise, they won't be used in the calculations.

Cell: C40

Comment: If you have entered data to calculate an ACR on page 3, and this is still defaulted to "10", make sure you have selected "Y" in cell E21

Cell: C41

Comment: If you have entered data to calculate an effluent specific CV on page 2, and this is still defaulted to "0.6", make sure you have selected "Y" in cell E20

Cell: L48

Comment: See Row 151 for the appropriate dilution series to use for these NOEC's

Cell: G62

Comment: Vertebrates are:
Pimephales promelas
Oncorhynchus mykiss
Cyprinodon variegatus

Cell: J62

Comment: Invertebrates are:
Ceriodaphnia dubia
Mysidopsis bahia

Cell: C117

Comment: Vertebrates are:

Pimephales promelas
Cyprinodon variegatus

Cell: M119

Comment: The ACR has been picked up from cell C34 on Page 1. If you have paired data to calculate an ACR, enter it in the tables to the left, and make sure you have a "Y" in cell E21 on Page 1. Otherwise, the default of 10 will be used to convert your acute data.

Cell: M121

Comment: If you are only concerned with acute data, you can enter it in the NOEC column for conversion and the number calculated will be equivalent to the TUa. The calculation is the same: $100/\text{NOEC} = \text{TUc}$ or $100/\text{LC50} = \text{TUa}$.

Cell: C138

Comment: Invertebrates are:

Ceriodaphnia dubia
Mysidopsis bahia

ATTACHMENT 20

Summary of the Cumulative Impact Analysis

Table 0: Revised projected 2018 and 2040 consumptive-use demand (mgd) based on current consumptive-use rate and a 7.5 MGD cap

Year	Summer Leesburg	Other Leesburg	Summer Green Energy + Leesburg w/ 7.5 MGD cap	Other Green Energy + Leesburg w/ 7.5 MGD cap	Summer difference w/ 7.5 MGD cap	Other difference w/ 7.5 MGD cap
2018	Base 1.95	Base 0.39	7.63	6.13	5.68	5.75
2040	4.57	0.90	12.07	8.40	7.50	7.50

Table 1: Leesburg consumptive use impact on minimum system storages in the forecast year 2018

	2018 baseline			2018 + CU + no T			2018 + CU + 805 cfs			2018 + CU + 1200 cfs			2018 + CU + 1400 cfs			2018 + CU + 1600 cfs	
Simulation period	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930
Simulation year	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018
Threshold	0.00	0.00	0.00	0.00	0.00	0.00	520.00	520.00	520.00	776.00	776.00	776.00	905.00	905.00	905.00	1034.00	1034.00
Average added CU, MG	0.00	0.00	0.00	5.73	5.73	5.73	5.71	4.65	5.11	5.59	3.22	4.73	5.46	3.02	4.23	5.28	2.88
Total CU during Little Seneca and Jennings Randolph water supply releases (releases not lagged to downstream locations), MG	0.00	0.00	0.00	1060.19	382.52	296.27	478.38	120.33	73.84	34.15	5.75	0.00	11.36	0.00	0.00	11.36	0.00
Little Seneca Reservoir, BG	2.51	2.61	2.51	2.46	2.46	2.47	2.51	2.52	2.51	2.50	2.61	2.50	2.51	2.61	2.51	2.51	2.61
Jennings Randolph water supply account, BG	8.09	8.43	8.09	7.84	8.25	7.84	8.04	8.41	8.04	8.08	8.43	8.08	8.09	8.43	8.09	8.09	8.43
Jennings Randolph water quality account, BG	3.37	5.79	4.00	3.37	5.79	3.97	3.37	5.79	3.97	3.37	5.79	4.00	3.37	5.79	4.00	3.37	5.79
Patuxent Reservoir, BG	0.31	0.88	1.95	0.31	0.86	1.95	0.31	0.87	1.95	0.31	0.88	1.95	0.31	0.88	1.95	0.31	0.88
Occoquan Reservoir, BG	2.88	2.97	3.06	2.88	2.97	3.01	2.88	2.97	3.05	2.88	2.97	3.04	2.88	2.97	3.06	2.88	2.97
Savage Reservoir, BG	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Little Seneca Reservoir and Jennings Randolph water supply account, combined, BG	10.59	11.06	10.59	10.30	10.74	10.30	10.55	10.93	10.55	10.59	11.06	10.59	10.59	11.06	10.59	10.59	11.06
Patuxent, Occoquan, and Little Seneca reservoirs and Jennings Randolph water supply, combined, BG	15.19	15.19	16.81	14.82	14.82	16.43	15.06	15.06	16.75	15.19	15.19	16.78	15.19	15.19	16.81	15.19	15.19
Loudoun Water minimum quarry storage, BG	0.57	0.57	0.68	0.57	0.57	0.67	0.57	0.57	0.68	0.57	0.57	0.68	0.57	0.57	0.68	0.57	0.57

Table 2: Leesburg consumptive use impact on minimum system storages in the forecast year 2040

	2040 baseline			2040 + CU + no T			2040 + CU + 805 cfs			2040 + CU + 1200 cfs			2040 + CU + 1400 cfs			2040 + CU + 1600 cfs	
Simulation period	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930
Simulation year	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040
Threshold	0.00	0.00	0.00	0.00	0.00	0.00	520.00	520.00	520.00	776.00	776.00	776.00	905.00	905.00	905.00	1034.00	1034.00
Average added CU, MG	0.00	0.00	0.00	7.50	7.50	7.50	7.45	5.67	6.55	7.30	4.15	6.12	7.12	3.92	5.51	6.88	3.68
Total CU during Little Seneca and Jennings Randolph water supply releases (releases not lagged to downstream locations), MG	0.00	0.00	0.00	3082.50	877.50	487.50	1672.50	262.50	150.00	240.00	7.50	45.00	52.50	0.00	15.00	30.00	0.00
Little Seneca Reservoir, BG	1.22	1.22	1.85	1.04	1.04	1.81	1.12	1.12	1.89	1.21	1.21	1.86	1.22	1.22	1.86	1.22	1.22
Jennings Randolph water supply account, BG	2.58	2.58	2.80	2.03	2.03	2.47	2.47	2.47	2.77	2.58	2.58	2.79	2.58	2.58	2.80	2.58	2.58
Jennings Randolph water quality account, BG	2.74	5.23	3.53	2.73	5.23	3.53	2.73	5.23	3.55	2.73	5.23	3.52	2.73	5.23	3.53	2.73	5.23
Patuxent Reservoir, BG	0.13	0.30	1.83	0.11	0.27	1.82	0.13	0.30	1.82	0.13	0.30	1.83	0.13	0.30	1.83	0.13	0.30
Occoquan Reservoir, BG	2.92	2.98	2.92	2.91	2.93	2.91	2.92	2.99	2.92	2.93	2.98	2.93	2.93	2.98	2.93	2.92	2.98
Savage Reservoir, BG	0.53	0.53	0.65	0.56	0.56	0.65	0.56	0.56	0.65	0.53	0.53	0.65	0.53	0.53	0.65	0.53	0.53
Little Seneca Reservoir and Jennings Randolph water supply account, combined, BG	3.89	3.89	4.65	3.17	3.17	4.28	3.69	3.69	4.65	3.89	3.89	4.65	3.89	3.89	4.66	3.89	3.89
Patuxent, Occoquan, and Little Seneca reservoirs and Jennings Randolph water supply, combined, BG	7.78	7.78	10.46	6.93	6.93	10.06	7.54	7.54	10.45	7.78	7.78	10.47	7.78	7.78	10.47	7.78	7.78
Loudoun Water minimum quarry storage, BG	0.00	0.00	0.18	0.00	0.00	0.17	0.00	0.00	0.18	0.00	0.00	0.18	0.00	0.00	0.18	0.00	0.00

[illegible][illegible]

Table 0: Projected Leesburg-Green Energy decreased return flow as consumptive use in PRRISM, units MGD

Year	Summer Leesburg Base	Other Leesburg Base	Summer Green Energy + Leesburg	Other Green Energy + Leesburg	Summer difference added to PRRISM assumptions	Other difference added to PRRISM assumptions
2018	1.95	0.39	7.63	6.13	5.68	5.75
2018 (w/ 4.5 MGD cap)	1.95	0.39	6.45	4.89	4.50	4.50
2040 (w/ 7.5 MGD cap)	4.57	0.90	12.07	8.40	7.50	7.50

Table 1A: Leesburg decreased return flow impact on minimum system storages in the forecast year 2018 (w/o 4.5 MGD cap)

	2018 baseline			18 CU no T			18 CU 1000 cfs			18 CU 1000 1200 cfs			18 CU 1200 cfs			18 CU 1300 cfs		
	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966
Simulation period	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018
Simulation year	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018
Threshold, MGD	0	0	0	0	0	0	646	646	646	646	646	646	776	776	776	840	840	840
Average reduced wastewater return flow, MGD	0.00	0.00	0.00	5.73	5.73	5.73	5.67	3.52	4.95	5.63	3.36	4.84	5.59	3.22	4.73	5.53	3.11	4.54
No. days Green Energy has access to treated wastewater	0	0	0	0	0	0	30417	224	315	30418	224	315	30023	205	301	29683	198	289
Little Seneca Reservoir, BG	2.51	2.61	2.51	2.46	2.46	2.47	2.51	2.61	2.51	2.51	2.61	2.51	2.50	2.61	2.50	2.50	2.61	2.50
Jennings Randolph water supply account, BG	8.09	8.43	8.09	7.84	8.25	7.84	8.05	8.43	8.05	8.07	8.43	8.07	8.08	8.43	8.08	8.08	8.43	8.08
Jennings Randolph water quality account, BG	3.37	5.79	4.00	3.37	5.79	3.97	3.37	5.79	4.00	3.37	5.79	4.00	3.37	5.79	4.00	3.37	5.79	4.00
Patuxent Reservoir, BG	0.31	0.88	1.95	0.31	0.86	1.95	0.30	0.88	1.95	0.30	0.88	1.95	0.31	0.88	1.95	0.31	0.88	1.95
Ocoquan Reservoir, BG	2.88	2.97	3.06	2.88	2.97	3.01	2.88	2.98	3.05	2.88	2.98	3.04	2.88	2.97	3.04	2.88	2.97	3.04
Savage Reservoir, BG	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Little Seneca Reservoir and Jennings Randolph water supply account, combined, BG	10.59	11.06	10.59	10.30	10.74	10.30	10.56	11.05	10.56	10.58	11.06	10.58	10.59	11.06	10.59	10.59	11.06	10.59
Patuxent, Ocoquan, and Little Seneca reservoirs and Jennings Randolph water supply, combined, BG	15.19	15.19	16.81	14.82	14.82	16.43	15.17	15.17	16.74	15.18	15.18	16.77	15.19	15.19	16.78	15.19	15.19	16.78
Loudoun Water minimum quarry storage, BG	0.57	0.57	0.68	0.57	0.57	0.67	0.57	0.57	0.68	0.57	0.57	0.68	0.57	0.57	0.68	0.57	0.57	0.68

Table 1B: Leesburg decreased return flow impact on minimum system storages in the forecast year 2018 (w/ 4.5 MGD cap)

	2018 baseline			18 CU no T capped			18 CU 1000 cfs capped			18 CU 1000 1200 cfs capped			18 CU 1200 cfs capped			18 CU 1300 cfs capped		
	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966
Simulation period	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018
Simulation year	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018
Threshold	0	0	0	0	0	0	646	646	646	646	646	646	776	776	776	840	840	840
Average reduced wastewater return flow, MGD	0.00	0.00	0.00	4.50	4.50	4.50	4.45	2.76	3.90	4.42	2.64	3.82	4.39	2.53	3.74	4.34	2.44	3.56
No. days Green Energy has access to treated wastewater	0	0	0	0	0	0	30420	224	316	30422	224	316	30037	205	303	29696	198	289
Little Seneca Reservoir, BG	2.51	2.61	2.51	2.48	2.50	2.48	2.51	2.61	2.51	2.51	2.61	2.51	2.50	2.61	2.50	2.50	2.61	2.50
Jennings Randolph water supply account, BG	8.09	8.43	8.09	7.89	8.29	7.89	8.06	8.43	8.06	8.08	8.43	8.08	8.08	8.43	8.08	8.08	8.43	8.08
Jennings Randolph water quality account, BG	3.37	5.79	4.00	3.37	5.79	3.97	3.37	5.79	4.00	3.37	5.79	4.00	3.37	5.79	4.00	3.37	5.79	4.00
Patuxent Reservoir, BG	0.31	0.88	1.95	0.31	0.86	1.95	0.30	0.88	1.95	0.30	0.88	1.95	0.31	0.88	1.95	0.31	0.88	1.95
Ocoquan Reservoir, BG	2.88	2.97	3.06	2.88	2.97	3.02	2.88	2.98	3.05	2.88	2.97	3.04	2.88	2.97	3.04	2.88	2.97	3.04
Savage Reservoir, BG	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Little Seneca Reservoir and Jennings Randolph water supply account, combined, BG	10.59	11.06	10.59	10.37	10.81	10.37	10.57	11.06	10.57	10.58	11.06	10.58	10.59	11.06	10.59	10.59	11.06	10.59
Patuxent, Ocoquan, and Little Seneca reservoirs and Jennings Randolph water supply, combined, BG	15.19	15.19	16.81	14.90	14.90	16.51	15.18	15.18	16.75	15.18	15.18	16.77	15.19	15.19	16.78	15.19	15.19	16.78
Loudoun Water minimum quarry storage, BG	0.57	0.57	0.68	0.57	0.57	0.67	0.57	0.57	0.68	0.57	0.57	0.68	0.57	0.57	0.68	0.57	0.57	0.68

Table 2: Leesburg decreased return flow impact on minimum system storages in the forecast year 2040 (w/ 7.5 MGD cap)

	2040 baseline			40 CU no T capped			40 CU 1000 cfs capped			40 CU 1000 1200 cfs capped			40 CU 1200 cfs capped			40 CU 1300 cfs capped		
	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966	1929-2013	1930	1966
Simulation period	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040
Simulation year	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040
Threshold	0	0	0	0	0	0	646	646	646	646	646	646	776	776	776	840	840	840
Average reduced wastewater return flow, MGD	0.00	0.00	0.00	7.50	7.50	7.50	7.40	4.56	6.41	7.35	4.36	6.26	7.30	4.15	6.12	7.21	4.03	5.75
No. days Green Energy has access to treated wastewater	0	0	0	0	0	0	30365	222	312	30368	222	312	29948	202	298	29594	196	280
Little Seneca Reservoir, BG	1.22	1.22	1.85	1.04	1.04	1.81	1.19	1.19	1.89	1.20	1.20	1.87	1.21	1.21	1.86	1.22	1.22	1.85
Jennings Randolph water supply account, BG	2.58	2.58	2.80	2.03	2.03	2.47	2.58	2.58	2.79	2.58	2.58	2.79	2.58	2.58	2.79	2.58	2.58	2.79
Jennings Randolph water quality account, BG	2.74	5.23	3.53	2.73	5.23	3.53	2.73	5.23	3.48	2.73	5.23	3.50	2.73	5.23	3.52	2.73	5.23	3.53
Patuxent Reservoir, BG	0.13	0.30	1.83	0.11	0.27	1.82	0.13	0.30	1.83	0.13	0.30	1.83	0.13	0.30	1.83	0.13	0.30	1.83
Ocoquan Reservoir, BG	2.92	2.98	2.92	2.91	2.93	2.91	2.92	2.98	2.92	2.93	2.98	2.93	2.93	2.98	2.93	2.93	2.98	2.93
Savage Reservoir, BG	0.53	0.53	0.65	0.56	0.56	0.65	0.53	0.53	0.65	0.53	0.53	0.65	0.53	0.53	0.65	0.53	0.53	0.65
Little Seneca Reservoir and Jennings Randolph water supply account, combined, BG	3.89	3.89	4.65	3.17	3.17	4.28	3.87	3.87	4.67	3.88	3.88	4.66	3.89	3.89	4.65	3.89	3.89	4.65
Patuxent, Ocoquan, and Little Seneca reservoirs and Jennings Randolph water supply, combined, BG	7.78	7.78	10.46	6.93	6.93	10.06	7.75	7.75	10.48	7.76	7.76	10.47	7.78	7.78	10.47	7.78	7.78	10.46
Loudoun Water minimum quarry storage, BG	0.00	0.00	0.18	0.00	0.00	0.17	0.00	0.00	0.18	0.00	0.00	0.18	0.00	0.00	0.18	0.00	0.00	0.18

18 CU 1400 cfs		
1929-2013	1930	1966
2018	2018	2018
905	905	905
5.46	3.02	4.23
29288	192	269
2.51	2.61	2.51
8.09	8.43	8.09
3.37	5.79	4.00
0.31	0.88	1.95
2.88	2.97	3.06
0.65	0.65	0.65
10.59	11.06	10.59
15.19	15.19	16.81
0.57	0.57	0.68

18 CU 1400 cfs capped		
1929-2013	1930	1966
2018	2018	2018
905	905	905
4.28	2.37	3.33
29300	192	270
2.51	2.61	2.51
8.09	8.43	8.09
3.37	5.79	4.00
0.31	0.88	1.95
2.88	2.97	3.06
0.65	0.65	0.65
10.59	11.06	10.59
15.19	15.19	16.81
0.57	0.57	0.68

40 CU 1400 cfs capped		
1929-2013	1930	1966
2040	2040	2040
905	905	905
7.12	3.92	5.51
29209	191	268
1.22	1.22	1.86
2.58	2.58	2.80
2.73	5.23	3.53
0.13	0.30	1.83
2.93	2.98	2.93
0.53	0.53	0.65
3.89	3.89	4.66
7.78	7.78	10.47
0.00	0.00	0.18

ATTACHMENT 21

Public Notice

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Montgomery County, Maryland and authorizes the reuse of reclaimed wastewater.

PUBLIC COMMENT PERIOD: April 16, 2015 to May 15, 2015

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Town of Leesburg
25 West Market Street, Leesburg, VA 20176
VA0092282

NAME AND ADDRESS OF FACILITY: Leesburg Water Pollution Control Facility
1391 East Market Street, Leesburg, VA 20176

PROJECT DESCRIPTION: The Town of Leesburg has applied for a reissuance of a permit for the public Leesburg Water Pollution Control Facility. The applicant proposes to release treated sewage wastewaters from residential and commercial areas at a rate of 7.5 million gallons per day into a water body and supply reclaimed wastewater for cooling water at a power plant. This permit reissuance also includes an expanded rate of 10 million gallons per day. Class A biosolids from the treatment process will be sold or given away in a bag or other container for application to the land. The facility proposes to release the treated sewage in the Potomac River in Montgomery County, Maryland in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, carbonaceous-biochemical oxygen demand, total suspended solids, dissolved oxygen, total Kjeldahl nitrogen, E. coli, total residual chlorine, nitrate+nitrite, total nitrogen and total phosphorus. The facility will also monitor for whole effluent toxicity.

This facility is subject to the requirements of 9VAC25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by hand-delivery, email, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment or may request electronic copies of the draft permit and fact sheet.

Name: Douglas Frasier
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3873 Email: Douglas.Frasier@deq.virginia.gov Fax: (703) 583-3821

ATTACHMENT 22

State Agency Comments

Frasier, Douglas (DEQ)

From: Aschenbach, Ernie (DGIF)
Sent: Friday, April 19, 2013 12:18 PM
To: Frasier, Douglas (DEQ)
Cc: ProjectReview (DGIF); nhreview (DCR)
Subject: ESSLog 33733; DEQ VPDES re-issuance VA0092282 for the Town of Leesburg WPCF in Loudoun County, Virginia

We have reviewed the above-referenced VPDES permit re-issuance.

According to our records, Goose Creek, a designated Threatened and Endangered (T&E) species water for the state Threatened (ST) wood turtle is known from the area. According to the application, the above-referenced facility discharges to the Potomac River. The current design flow (capacity) is 7.5 MGD, with provisions for a future maximum design flow of 10 MGD. The receiving reach of the Potomac River has a 7Q10 of 627 MGD. Provided the applicant adheres to the effluent characteristics identified in the permit application, we do not anticipate the issuance of this permit to result in adverse impact to T&E species waters or their associated species.

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources.

Thank you for the opportunity to provide comments.

Ernie Aschenbach
Environmental Services Biologist
Virginia Dept. of Game and Inland Fisheries
P.O. Box 11104
4010 West Broad Street
Richmond, VA 23230
Phone: (804) 367-2733
FAX: (804) 367-2427
Email: Ernie.Aschenbach@dgif.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources



David A. Johnson
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Division of Natural Heritage
217 Governor Street
Richmond, Virginia 23219-2010
(804) 786-7951



April 18, 2013

Douglas Frasier
DEQ - NRO
13901 Crown Court
Woodbridge, VA 22193

Re: VA0092282, Town of Leesburg WPCF

Dear Mr. Frasier:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Potomac River – Goose Creek Stream Conservation Unit (SCU) is located downstream from the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. The Potomac River – Goose Creek SCU has been given a biodiversity ranking of B4, which represents a site of moderate significance. The natural heritage resources associated with this site are:

<i>Lampsilis cariosa</i>	Yellow lampmussel	G3G4/S2/NL/NL
<i>Lasmigona subviridis</i>	Green floater	G3/S2/NL/LT

The Yellow lampmussel ranges from Nova Scotia to Georgia in Atlantic slope drainages (NatureServe, 2009). In Virginia, it is recorded from the Roanoke, Chowan, James, York, and Potomac drainages. It is found in larger streams and rivers where good currents exist over sand and gravel substrates and in small creeks and ponds (Johnson, 1970).

The Green floater, a rare freshwater mussel, ranges from New York to North Carolina in the Atlantic Slope drainages, as well as the New and Kanawha River systems in Virginia and West Virginia (NatureServe, 2009). In Virginia, there are records from the New, Roanoke, Chowan, James, York, Rappahannock, and Potomac River drainages. Throughout its range, the Green floater appears to prefer the pools and eddies with gravel and sand bottoms of smaller rivers and creeks, smaller channels of large

rivers (Ortman, 1919) or small to medium-sized streams (Riddick, 1973). Please note that this species has been listed as state threatened by the Virginia Department of Game and Inland Fisheries (VDGIF).

Considered good indicators of the health of aquatic ecosystems, freshwater mussels are dependent on good water quality, good physical habitat conditions, and an environment that will support populations of host fish species (Williams et al., 1993). Because mussels are sedentary organisms, they are sensitive to water quality degradation related to increased sedimentation and pollution. They are also sensitive to habitat destruction through dam construction, channelization, and dredging, and the invasion of exotic mollusk species.

To minimize impacts to aquatic resources, DCR recommends the use of uv/ozone to replace chlorination disinfection and utilization of new technologies as they become available to improve water quality. Due to the legal status of the Green floater, DCR also recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDGIF, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.


Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The VDGIF maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Gladys Cason (804-367-0909 or Gladys.Cason@dgif.virginia.gov).

Should you have any questions or concerns, feel free to contact René Hypes at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,



S. René Hypes
Project Review Coordinator

CC: Ernie Aschenbach, VDGIF

Literature Cited

Johnson, R.I. 1970. The systematics and zoogeography of the Unionidae (Mollusca: Bivalvia) of the southern Atlantic slope region. *Bulletin Museum of Comparative Zoology* vol 140(6): 362-365.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: April 27, 2010).

Ortman, A.E. 1919. A monograph of the naiades of Pennsylvania, Part 3: Systematic account of the genera and species. *Mem. Carnegie Mus.* 8:1-384.

Riddick, M.B. 1973. Freshwater mussels of the Pamunkey River system, Virginia. M.S. Thesis, Virginia Commonwealth University, Richmond, VA 105pp.

Williams, J.D., M.L. Warren, Jr., K.S. Cummings, J.L. Harris, and R.J. Neves. 1993. Conservation status of freshwater mussels of the United States and Canada. *Fisheries* 18: 6-9.

ATTACHMENT 23

Public Comments

Frasier, Douglas (DEQ)

From: Curt Dalton -MDE- [curt.dalton@maryland.gov]
Sent: Tuesday, May 05, 2015 6:27 PM
To: Frasier, Douglas (DEQ); Yen-Der Cheng -MDE-; Heather Nelson -MDE-; Sharon Talley -MDE-; Julie Gowe -MDE-; Scott Boylan -MDE-; William Lee -MDE-
Subject: Re: Town of Leesburg WPCF - VA0092282

Mr. Frasier,

Thank you for the opportunity to review and comment the draft Town of Leesburg WPCF discharge permit. MDE has the following comments on the draft.

The requirement for the submission of Discharge Monitoring Reports (DMRs) to MDE in Part I. E.9 can be removed. However, we are aware that DEQ has a very robust e-DMR submittal system and we recommend encouraging the permittee to use e-DMR if they are not already doing so.

It was noted that Part I.E.10 requires the permittee to notify MDE within six hours of an unauthorized, unusual or extraordinary discharge. We recommend revising either Part I.E.10 or Part II.I. to include these additional MDE notification requirements.

"If, for any reason, the permittee does not comply with or will be unable to comply with any permitted effluent limit to the extent that it violates EPA's Significant Non-Compliance Criteria or results in a Upset or Bypass of the treatment system or any parts thereof, the permittee shall, within 24 hours, notify the Maryland Department of the Environment (MDE) by telephone at (410) 537-3510 during work hours or at (866) 633-4686 during evenings, weekends, and holidays. The permittee shall provide the MDE with the following information in writing within five days of such oral notification.

- a. a description of the noncomplying discharge including the name of the stream and the impact upon the receiving waters;
- b. cause of noncompliance;
- c. the duration of the period of noncompliance and the anticipated time the condition of noncompliance is expected to continue;
- d. steps taken by the permittee to reduce and eliminate the noncomplying discharge;
- e. steps to be taken by the permittee to prevent recurrence of the condition of noncompliance;
- f. a description of the accelerated or additional monitoring to determine the nature and impact of the noncomplying discharge; and
- g. the results of the monitoring described in f. above."

Thanks again for the opportunity to review and comment on the draft permit. Please send me a copy of the final issued permit.

Curtis H. Dalton, P.E., Chief
Technical Services Division
Maryland Department of the Environment
Water Management Administration
Wastewater Permits Program
1800 Washington Boulevard, STE 455
Baltimore, MD 21230-1708

curt.dalton@maryland.gov
Phone: (410) 537-3675
FAX: (410) 537-3163

On Thu, Apr 23, 2015 at 9:36 AM, Frasier, Douglas (DEQ) <Douglas.Frasier@deq.virginia.gov> wrote:

Mr. Dalton,

Attached, you will find the current permit as requested.

If you need anything else, please do not hesitate.

Best regards,

Douglas Frasier

VPDES Permit Writer, Senior II
Certified Nutrient Management Planner
Regional Toxics Management Program Coordinator
Department of Environmental Quality
Northern Regional Office
13901 Crown Court, Woodbridge, VA 22193
Phone: [703-583-3873](tel:703-583-3873)
Fax: [703-583-3821](tel:703-583-3821)
Douglas.Frasier@deq.virginia.gov

From: Curt Dalton -MDE- [<mailto:curt.dalton@maryland.gov>]
Sent: Wednesday, April 22, 2015 5:34 PM
To: Frasier, Douglas (DEQ)
Cc: Yen-Der Cheng -MDE-
Subject: Re: Town of Leesburg WPCF - VA0092282

Mr. Frasier,

Thank you for the opportunity to review the draft Town of Leesburg WPCF permit. Could you e-mail me a copy of the current permit for the facility?

I will try to complete my review by the end of this week.

Thanks,

Curtis H. Dalton, P.E., Chief
Technical Services Division
Maryland Department of the Environment
Water Management Administration
Wastewater Permits Program
1800 Washington Boulevard, STE 455
Baltimore, MD 21230-1708

curt.dalton@maryland.gov
Phone: [\(410\) 537-3675](tel:(410)537-3675)
FAX: [\(410\) 537-3163](tel:(410)537-3163)

On Mon, Apr 13, 2015 at 2:54 PM, Frasier, Douglas (DEQ) <Douglas.Frasier@deq.virginia.gov> wrote:

All,

There were a couple of typos for TRC in Part I of the permit – they have been corrected and I just reposted the corrected version; modification date of today.

Doug

From: Frasier, Douglas (DEQ)
Sent: Monday, April 13, 2015 1:23 PM
To: 'Amy Wyks'; Brian Bailey; 'cmurray@fairfaxwater.org'; 'Cherie Schultz'; Sarah Ahmed; 'rmetersky@pandafunds.com';

John Andrews (andcominv@aol.com); 'Jordan Dimoff'

Cc: Thomas, Bryant (DEQ); Faha, Thomas (DEQ); Kudlas, Scott (DEQ); McGurk, Brian (DEQ)

Subject: Town of Leesburg WPCF - VA0092282

Good Afternoon,

Attached, you will find the Public Notice for the referenced facility's permit reissuance. The 30-day comment period begins Thursday, 16 April 2015 and ends on 15 May 2015.

I have uploaded the Fact Sheet, supporting documentation and Draft permit at the following address for your convenience:

<http://www.deq.virginia.gov/filesshare/wps/PERMIT/NRO/Leesburg/>

Should you have any questions, please do not hesitate.

Best regards,

Douglas Frasier

VPDES Permit Writer, Senior II

Certified Nutrient Management Planner

Regional Toxics Management Program Coordinator

Department of Environmental Quality

Northern Regional Office

13901 Crown Court, Woodbridge, VA 22193

Phone: [703-583-3873](tel:703-583-3873)

Fax: [703-583-3821](tel:703-583-3821)

Douglas.Frasier@deq.virginia.gov

Fairfax Water

FAIRFAX COUNTY WATER AUTHORITY

8570 Executive Park Avenue

Fairfax, Virginia 22031-2218

www.fairfaxwater.org

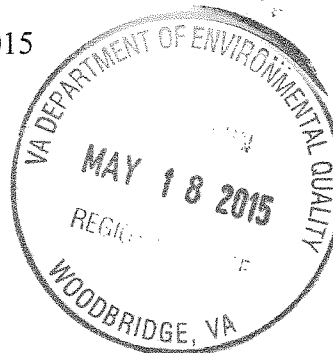
PHILIP W. ALLIN, CHAIRMAN
LINDA A. SINGER, VICE-CHAIRMAN
FRANK R. BEGOVICH, SECRETARY
ARMAND B. WEISS, TREASURER
BURTON J. RUBIN
HARRY F. DAY
J. ALAN ROBERSON
RICHARD DOTSON
ANTHONY H. GRIFFIN
JOSEPH CAMMARATA

CHARLES M. MURRAY
GENERAL MANAGER
TELEPHONE (703) 289-6011

STEVEN T. EDGEMON
DEPUTY GENERAL MANAGER
TELEPHONE (703) 289-6012

FAX (703) 289-6269

May 12, 2015



Mr. Douglas Frasier
Virginia Department of Environmental Quality
13901 Crown Court
Woodbridge, VA 22193

Re: **VPDES Permit VA0092282**
Town of Leesburg

Dear Mr. Frasier:

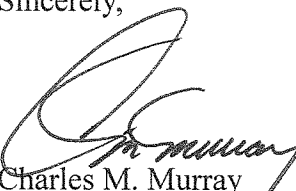
The Fairfax County Water Authority ("Fairfax Water") appreciates the opportunity to comment on this draft permit.

Fairfax Water values the work of the staff of the Virginia Department of Environmental Quality (DEQ) in putting together the conditions for this permit. In particular, we commend DEQ for working closely with staff of the Interstate Commission on the Potomac River Basin (ICPRB) Cooperative Section for Water Supply Operations (Co-Op) to evaluate the impact of consumptive use of the Town's wastewater discharge to the Potomac River.

Again, we commend DEQ staff for their efforts in putting together the permit conditions.

Should you have questions or need additional information, please contact Greg Prelewicz, Manager, Planning, at (703) 289-6318.

Sincerely,

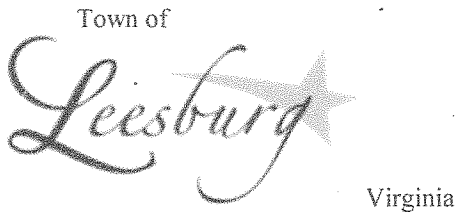


Charles M. Murray
General Manager

cc: Deputy General Manager
Director, Planning and Engineering
Manager, Planning

ATTACHMENT 24

Town of Leesburg, Fairfax Water & ICPRB Comments
&
DEQ Staff Responses

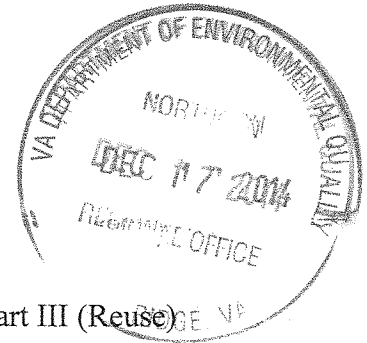


AMY R. WYKS, P.E.
Director of Utilities

1385 East Market Street · 20176 · 703-771-2750 · FAX: 703-737-7185 · www.leesburgva.gov

December 12, 2014

Mr. Douglas Frasier
Department of Environmental Quality
Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193



RE: Town of Leesburg WPCF – Draft VDPES Permit VA0092282 – Part III (Reuse)

Dear Mr. Frasier:

Thank you for the revised draft of Part III, which you provided by email dated November 13, 2014. As you know, Draft Part III proposes first-of-their-kind restrictions on effluent reuse, notwithstanding the statewide legislative policy of the Commonwealth to “promote and encourage the reclamation and reuse of wastewater.” Va. Code § 62.1-44.2. The implications to our wastewater utility and water recycling efforts are significant.

For reasons we have addressed with DEQ previously in this process, we are not convinced that the proposed restrictions are legal required, necessary to avoid a “significant adverse impact” on beneficial uses, or an appropriate manner of water allocation relative to unpermitted downstream water users. Nevertheless, at this stage, we are willing to move forward with DEQ on permit reissuance generally in accordance with what DEQ has proposed, subject to resolution of the limited comments and revisions requested below.

REUSE DIVERSION MANAGEMENT AND RESTRICTION (PART III.B.3.)

- 1. Diversion Restriction Phase (III.B.3.a.)** – We appreciate DEQ’s inclusion of a phase-in of the proposed diversion restrictions. While we believe the phase-in could certainly be later than 2020 in that downstream beneficial use considerations are heavily influenced by longer-term growth projections and are less relevant in the near-term, we can accept the 2020 phase-in (but cannot accept any shorter period).
- 2. Stream Flow and Storage Release Monitoring (III.B.3.b.1))** – This provision requires the Town to calculate a moving seven-day average of Potomac River flows exclusive of ICPRB CO-OP water supply storage releases. Please clarify that these “CO-OP Releases” do not include scheduled releases planned by the Corps by adding the following sentence at the end of III.B.3.1): “For purposes of this calculation, a CO-OP Release does not include scheduled

releases such as for whitewater and non-whitewater recreation or artificial variable flow water quality releases.” Also, please advise how we can obtain CO-OP Release data?

3. **Restriction When Stream Flow > 1,400 CFS (III.B.3.b.1))** – While we understand the role of the 4.5 MGD cap in the context of the pre-2020 phase-in (because no other restrictions apply), there is no basis for continuing that cap after January 1, 2020, when stream flows are high. Please delete “not to exceed 4.5 MGD”.
4. **Restrictions When Stream Flow < 1,400 CFS (III.B.3.b.2) and 3))** – The October 8, 2014 Draft Part III included an exception from the diversion restriction for the months of September, October and November when the water supply storage at the Jennings Randolph and Little Seneca reservoirs is greater than or equal to 85% of storage capacity. Please restore this exception as follows:

Modify III.B.3.b.2. as follows: “When the calculated moving seven-day average (Q_{por}), as calculated above, is less than or equal to 1,400 cfs but greater than 805 cfs, the permittee may (a) divert up to 2.25 MGD of treated effluent for reuse during any month and (b) during the months of September, October and November when the water supply storage at the Jennings Randolph and Little Seneca reservoirs is greater than or equal to 85% of storage capacity, divert up to 4.5 MGD of treated effluent for reuse.”

Modify III.B.3.b.3. as follows: “When the calculated moving seven-day average (Q_{por}), as calculated above, is less than or equal to 805 cfs, no diversion of treated effluent shall be allowed for reuse, except during the months of September, October and November when the water supply storage at the Jennings Randolph and Little Seneca reservoirs is greater than or equal to 85% of storage capacity in which event the permittee may divert up to 4.5 MGD of treated effluent for reuse.”

5. **Additional Diversion Plan (III.B.3.c.)** – For consistency with DEQ’s new reuse regulation, which is based on a “significant adverse impact” rather than any impact regardless of insignificance, please revise the last sentence as follows: “This plan shall ensure that the Potomac River flows are maintained in such a way as to not cause a significant adverse impact on downstream beneficial uses.” Also, we suggest changing “on or before July 1, 2019” to “at least 180 days prior to the proposed effective date for such diversion”, which is a form that can also be used in future permit renewals.

OTHER COMMENTS ON PART III

6. **Prohibitions on Reclamation and Reuse (III.B.2.g.)** – The III.B.2.g.narrative prohibition on diversions causing significant adverse impact to other beneficial uses has been interpreted and applied by DEQ in a comprehensive, numeric manner in Part III.B.3. The permit should be clarified to ensure that the narrative prohibition of III.B.2.g. cannot be interpreted (misinterpreted) to conflict with or supersede the diversion prohibitions and authorizations of III.B.3. After the last sentence in III.B.2.g., please insert “This provision does not apply to diversions authorized under III.B.3. of this permit.”

7. **Reclamation and Reuse Reopener (III.B.6.)** – Given the unique nature of the Town's project, especially the regulatory certainty required for the first five-year permit term relative to the commercial development process for the new power station and the comprehensive numeric diversion restrictions of III.B.3., we request deletion of this reopener for this permit cycle.
8. **Corrective Action Threshold for Total Residual Chlorine (III.B.8.)** – Based on the Town's existing disinfection system, records and commitment to using, upgrading and keeping necessary technology up to current requirements, we request the same approach for the new reclamation system as current outfall arrangement.
9. **95% Capacity Trigger (III.B.13.)** – As drafted, this provision could be triggered merely by operating the reuse system as intended (i.e., at diversion levels authorized in the permit). This provision does not make sense for a new system constructed to serve a large end user. According, please delete III.B.13. (Note: The heading "95% Designed Design Capacity" should be "Designated" design capacity.)
10. **Interruption of Reclaimed Water Supply (III.B.28.)** – This provision should be clarified to exclude diversion restrictions imposed by Part III.B.3. After the last sentence in this provision, please insert "This provision does not apply to supply or service reductions required by Part III.B.3. of this permit."

As DEQ is aware, the Town is a party to a reuse agreement with Green Energy Partners / Stonewall ("GEP") for the delivery of reclaimed water for power station cooling purposes. However, because the agreement between the Town and GEP is premised on a higher volume of reclaimed water than DEQ proposes to authorize in our VPDES Permit, the Town and GEP recently decided to initiate a process to align the agreement with the permit. We ask your continued timely attention to this permit so that we can do so with a clear understanding of DEQ's requirements. Also, since only Part III of the proposed permit was provided for review, we ask for an opportunity to review the full permit after the above comments have been addressed.

Please contact me at (703) 737-7119 if you have any questions.

Sincerely,



Amy R. Wyks, P.E.
Director of Utilities

C: Mr. Bryant Thomas, DEQ-NRO
Mr. Ross Metersky, Panda Power
Barbara A. Notar, Esq., Deputy Town Attorney



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821

www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

18 February 2015

awyks@leesburgva.gov

Ms. Amy Wyks, P.E.
Director of Utilities
Town of Leesburg
25 W. Market Street
Leesburg, VA 20176

Re: Town of Leesburg comments concerning the Draft permit, Part III (Reclamation and Reuse)
VA0092282

Dear Ms. Wyks,

DEQ staff received the aforementioned on 12 December 2014 via email concerning the Draft permit, Part III, which was emailed to the Town on 13 November 2014. Below, you will find the Town's comments followed by DEQ staff's response. Enclosed is the Draft permit in its entirety. Part III, Reclamation and Reuse, contains revisions which DEQ staff found were warranted.

Town of Leesburg:

Diversion Restriction Phase (III.B.3.a.) – We appreciate DEQ's inclusion of a phase-in of the proposed diversion restrictions. While we believe the phase-in could certainly be later than 2020 in that downstream beneficial use considerations are heavily influenced by longer-term growth projections and are less relevant in the near-term, we can accept the 2020 phase-in (but cannot accept any shorter period).

DEQ Staff:

VPDES permits have a maximum 5 year term. All conditions and requirements must be within that 5 year term and may not extend beyond that time frame. The permit will contain a 5 year phase-in period which will commence on the permit's effective date.

Town of Leesburg:

Stream Flow and Storage Release Monitoring (III.B.3.b.1)) – This provision requires the Town to calculate a moving seven-day average of Potomac River flows exclusive of ICPRB CO-OP water supply storage releases. Please clarify that these "CO-OP Releases" do not include scheduled releases planned by the Corps by adding the following sentence at the end of III.B.3.1): "For purposes of this calculation, a CO-OP Release does not include scheduled releases such as for whitewater and non-whitewater recreation or artificial variable flow water quality releases." Also, please advise how we can obtain CO-OP Release data?

DEQ Staff:

Staff does not object to the requested additional language for Part III.B.3.b.1. Please refer to the enclosed Draft permit for specific language.

The CO-OP Release data may be obtained from Cherie Schultz, Director for CO-OP Operations at ICPRB. She may be contacted at 301-984-1908 extension 120 or via email at cschultz@icprb.org for coordination purposes.

Town of Leesburg:

Restriction When Stream Flow > 1,400 CFS (III.B.3.b.1)) – While we understand the role of the 4.5 MGD cap in the context of the pre-2020 phase-in (because no other restrictions apply), there is no basis for continuing that cap after January 1, 2020, when stream flows are high. Please delete "not to exceed 4.5 MGD".

DEQ Staff:

The modeling exercises utilized projected average flows for the wastewater treatment plant in order to simulate proposed reuses during this permit term as recommended in the Town's correspondence dated 8 May 2014 and subsequent meetings/conference calls. Therefore, the cap shall remain in the proposed permit. The Town may elect to revisit the cumulative impact analysis during the next reissuance in order to re-evaluate the maximum diversion cap. Staff does note that the referenced section above should read III.B.3.b.2.

Town of Leesburg:

Restrictions When Stream Flow < 1,400 CFS (III.B.3.b.2) and 3)) – The October 8, 2014 Draft Part III included an exception from the diversion restriction for the months of September, October and November when the water supply storage at the Jennings Randolph and Little Seneca reservoirs is greater than or equal to 85% of storage capacity. Please restore this exception as follows:

Modify III.B.3.b.2. as follows: "When the calculated moving seven-day average (Q_{por}), as calculated above, is less than or equal to 1,400 cfs but greater than 805 cfs, the permittee may (a) divert up to 2.25 MGD of treated effluent for reuse during any month and (b) during the months of September, October and November when the water supply storage at the Jennings Randolph and Little Seneca reservoirs is greater than or equal to 85% of storage capacity, divert up to 4.5 MGD of treated effluent for reuse."

Modify III.B.3.b.3. as follows: "When the calculated moving seven-day average (Q_{por}), as calculated above, is less than or equal to 805 cfs, no diversion of treated effluent shall be allowed for reuse, except during the months of September, October and November when the water supply storage at the Jennings Randolph and Little Seneca reservoirs is greater than or equal to 85% of storage capacity in which event the permittee may divert up to 4.5 MGD of treated effluent for reuse."

DEQ Staff:

Staff concurs with the request pertaining to Part III.B.3.b.2. and has included that language in the enclosed Draft permit.

However, in terms of Part III.B.3.b.3., staff reviewed the model outputs pertaining to the temporal, seasonal provisions and this does not allow for any reuse when river flows are less than or equal to 805 cfs, as calculated. Therefore, the stated diversion exclusion during river flows less than or equal to 805 cfs shall remain in the proposed permit.

Town of Leesburg:

Additional Diversion Plan (III.B.3.c.) – For consistency with DEQ's new reuse regulation, which is based on a "significant adverse impact" rather than any impact regardless of insignificance, please revise the last sentence as follows: "This plan shall ensure that the Potomac River flows are maintained in such a way as to not cause a significant adverse impact on downstream beneficial uses." Also, we suggest changing "on or before July 1, 2019" to "at least 180 days prior to the proposed effective date for such diversion", which is a form that can also be used in future permit renewals.

DEQ Staff:

With regard to inclusion of language concerning significant adverse impact, staff understands the request and proposes the following revised language to the last sentence in this section to address the comment and maintain consistency with the Reuse Regulations: 'This plan shall ensure that the Potomac River flows are maintained in such a way as to comply with Part III.B.2.g. of this permit'. The enclosed Draft permit reflects this proposed language.

In addition, a specific date will be left within the permit instead of the proposed '180 days prior' statement. A specific due date is definitive; eliminating any ambiguity and misinterpretation. Future permit renewals will address specific due dates that may be warranted within the context of that respective five year term.

Town of Leesburg:

Prohibitions on Reclamation and Reuse (III.B.2.g.) – The III.B.2.g.narrative prohibition on diversions causing significant adverse impact to other beneficial uses has been interpreted and applied by DEQ in a comprehensive, numeric manner in Part III.B.3. The permit should be clarified to ensure that the narrative prohibition of III.B.2.g. cannot be interpreted (misinterpreted) to conflict with or supersede the diversion prohibitions and authorizations of III.B.3. After the last sentence in III.B.2.g., please insert "This provision does not apply to diversions authorized under III.B.3. of this permit."

DEQ Staff:

Part III.B.2.g applies to any diversion of a wastewater treatment plant's discharge for reclamation and reuse, including that of the Town of Leesburg. The intent of the condition found in Part III.B.3 is to establish the requirements for Leesburg to comply with the prohibition under Part III.B.2.g, based on the best available information at the time the permit was drafted. Part III.B.3 should not be interpreted to mean that as long as a facility follows what is stated in Part III.B.3, they are no longer subject to the regulatory requirement stated in Part III.B.2.g. Rather, compliance with this regulatory requirement is demonstrated through complying with the permit conditions prescribed in Part III.B.3. More exactly, as long as the Town complies with the established Reuse Diversion Management and Restrictions as set forth in the permit the Town would be considered compliant with Part III.B.2.g. during this permit term. If significant adverse impacts are observed, then the assumptions and information utilized in establishing conditions found in Part III.B.3. may need to be revisited during the next permit reissuance. Accordingly, staff does not believe the requested language insertion is appropriate.

Town of Leesburg:

Reclamation and Reuse Reopener (III.B.6.) – Given the unique nature of the Town's project, especially the regulatory certainty required for the first five-year permit term relative to the commercial development process for the new power station and the comprehensive numeric diversion restrictions of III.B.3., we request deletion of this reopener for this permit cycle.

DEQ Staff:

Reopener clauses are included in every discharge permit (e.g. TMDL, Water Quality etc.) and this condition is no different in this respect. If regulations are amended in the future and are applicable to the Town of Leesburg or if future conditions warrant revising diversion requirements, DEQ staff has the authority and responsibility to modify the permit to incorporate changes. This special condition notifies both the permittee and the public of responsibility and intention of the agency to ensure the permit is consistent with regulations and protective of beneficial uses. Additionally, should there be any future changes to regulations applicable to this discharge and/or diversion, the administrative process of developing the regulation allows stakeholders the opportunity to participate. Accordingly, this special condition will remain as stated.

Town of Leesburg:

Corrective Action Threshold for Total Residual Chlorine (III.B.8.) – Based on the Town's existing disinfection system, records and commitment to using, upgrading and keeping necessary technology up to current requirements, we request the same approach for the new reclamation system as current outfall arrangement.

DEQ Staff:

The procedures set forth in the permit condition are not optional but are required in accordance with 9VAC25-740-70.C.1, except where a method other than chlorination will be utilized for disinfection. These procedures are intended to ensure that the reclaimed water complies with the TRC standard (TRC CAT) for the protection of human health and the environment. In addition, these procedures provide a measure of quality control and assurance important to end users who expect or need a consistent product and for overall public acceptance. The conditions and requirements pertaining to the TRC CAT will remain as stated.

Town of Leesburg:

95% Capacity Trigger (III.B.13.) – As drafted, this provision could be triggered merely by operating the reuse system as intended (i.e., at diversion levels authorized in the permit). This provision does not make sense for a new system constructed to serve a large end user. According, please delete III.B.13. (Note: The heading "95% Designed Design Capacity" should be "Designated" design capacity.)

DEQ Staff:

This condition is required in accordance with 9VAC25-740-180 and is generally applicable to conjunctive systems in which there are differences in the treatment processes for effluent that will be discharged to surface waters versus reclaimed water that will be sent to an end user for reuse. Since there is no difference in the treatment at this facility between the effluent and the supplied reclaimed water, the 95% Capacity Reopener found in Part I.E.1 would be applicable to both the discharge and the reclaimed water system. Therefore, staff concurs that the 95% Capacity Trigger condition pertaining to the water reclamation system may be deleted.

Town of Leesburg:

Interruption of Reclaimed Water Supply (III.B.28.) – This provision should be clarified to exclude diversion restrictions imposed by Part III.B.3. After the last sentence in this provision, please insert "This provision does not apply to supply or service reductions required by Part III.B.3. of this permit."

DEQ Staff:

Staff concurs that Part III.B.28 does require clarification in regards to reportable interruptions of reclaimed water supply and the required restrictions found in Part III.B.3. Please refer to the enclosed Draft permit for specific language found in Part III.B.28.

Ms. Amy Wyks
DEQ Response to Comments
18 February 2015
Page 5 of 5

Again, please refer to the enclosed Draft permit and Fact Sheet for reference and review. Please provide any further comments or concurrence of the proposed permit conditions and requirements on or before 12 March 2015.

Please contact Douglas Frasier at 703-583-3873 or via email at Douglas.Frasier@deq.virginia.gov should you have any specific questions to discuss.

Respectfully,

A handwritten signature in black ink, appearing to read 'Bryant Thomas', with a stylized flourish at the end.

Bryant Thomas
Regional Water Permits and Planning Manager

Enclosure

Frasier, Douglas (DEQ)

From: Frasier, Douglas (DEQ)
Sent: Wednesday, February 18, 2015 1:06 PM
To: Amy Wyks; 'Brian Bailey'; Barbara Notar; 'rmetersky@pandafunds.com'; John Andrews (andcominv@aol.com)
Cc: Thomas, Bryant (DEQ); Faha, Thomas (DEQ); Kudlas, Scott (DEQ); McGurk, Brian (DEQ); 'Jordan Dimoff'
Subject: Town of Leesburg Draft Permit Comments and Responses
Attachments: VA0092282 DEQ Response to Comments Feb 2015.pdf

Good afternoon,

Attached, you will find DEQ staff responses to your comments received on 12.12.2015 concerning the Draft permit (Part III) for the Town of Leesburg WPCF. Hardcopy will follow.

You also requested that a copy of the full permit be sent for your review since Part III of the permit was the only part reviewed and subject of the Town's comments. The Fact Sheet, supporting documentation and Draft permit have been uploaded to the following address for your review:

<http://www.deq.virginia.gov/files/share/wps/PERMIT/NRO/Leesburg/>

It should be noted that Parts I, II and IV have not changed, except to correct typographical errors, since it was sent to you for review in July 2014.

Should you have any questions or would like to discuss further, please do not hesitate.

Best regards,

Douglas Frasier

VPDES Permit Writer, Senior II
Certified Nutrient Management Planner
Regional Toxics Management Program Coordinator
Department of Environmental Quality
Northern Regional Office
13901 Crown Court, Woodbridge, VA 22193
Phone: 703-583-3873
Fax: 703-583-3821
Douglas.Frasier@deq.virginia.gov

Frasier, Douglas (DEQ)

Subject: RE: Response to DEQ re: draft permit conditions

From: Charles Murray [mailto:cmurray@fairfaxwater.org]

Sent: Wednesday, February 25, 2015 12:30 PM

To: Kudlas, Scott (DEQ)

Subject: FW: Response to DEQ re: draft permit conditions

Scott:

Thank you for time and effort that you and your staff have put into the consideration of permit conditions for the Town's VPDES renewal. Your efforts in developing conditions that are protective of the community water supply investments made by Fairfax Water and the other Co-Operative water utilities are appreciated. Here are a few comments on the proposed permit conditions for consideration.

Assurances of Flow Restrictions: We would like to see assurances in Part III.B.3 that the rules governing the diversion of treated effluent will be in place no later than 2020, with no opportunity to delay or defer these restrictions in the future and regardless of the status of the Town's next permit cycle.

Flow restrictions need to be calculated on a daily basis: While the draft permit uses a 7-day rolling average flow to calculate the need for flow restrictions, the flow restrictions in Part III.B.3 need to utilize daily flows (24-hour average). This would be consistent with the time step in ICPRB's PRISM model and with the flow recommendations for the Potomac River developed by the Maryland DNR (1981).

Coordination with Co-Op: Part III.B.3.c. allows the Town to submit a plan to request additional diversion of reuse water. We respectfully request that any consideration submitted by the Town to DEQ be coordinated with both the Co-Op water utilities and ICPRB Co-Op staff, with opportunity for comment and review.

Reclaimed Water Management Plan (RWMP): We request that the Reclaimed Water Management Plan (RWMP) referenced in Part III.B.1 be made available for review and comment to Fairfax Water and other interested parties, within 30-days of its submission.

Include Maryland withdrawals and discharges: Section 12 of the Fact Sheet for this permit should include the discharges, intakes and monitoring stations in the Potomac River emanating from the Maryland shoreline.

Regards;
Chuck

Charles M. Murray

General Manager

The logo for Fairfax Water, featuring the words "Fairfax Water" in a stylized font with a blue and green color scheme.

703-289-6011

cmurray@fairfaxwater.org

Town of



Virginia

AMY R. WYKS, P.E.
Director of Utilities

1385 East Market Street · 20176 · 703-771-2750 · FAX: 703-737-7185 · www.leesburgva.gov

February 26, 2015

Mr. Douglas Frasier
Department of Environmental Quality
Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193

RE: Town of Leesburg WPCF – Draft VDPES Permit VA0092282 – Part III (Reuse)

Dear Mr. Frasier:

Thank you for your February 18, 2015 letter responding to the Town's December 12, 2014 comments. We appreciate the revisions made to the Draft Permit.

Of our requests that DEQ denied, we respectfully request further reconsideration of only one item, which is our request regarding the relationship of the narrative prohibition on "significant adverse impact" under Part III.B.2.g. to the stringent numeric restrictions set forth in Part III.B.3. We appreciate DEQ's response that "compliance with this regulatory requirement [III.B.2.g.] is demonstrated through complying with the permit conditions described in Part III.B.3." and we would simply ask that this linkage be reflected in the permit.

In our December 12 comments, we requested a revision to Part III.B.2.g. for that purpose; however, we believe that a simpler way to reflect our mutual understanding of how compliance is demonstrated is to add this introductory sentence after the heading at III.B.3. and before III.B.3.a.: "Compliance with the requirement of III.B.2.g shall be demonstrated through complying with the following conditions:".

We ask for your continued timely attention to this permit. Please contact me at (703) 737-7119 if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "Amy R. Wyks". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Amy R. Wyks, P.E.
Director of Utilities

C: Mr. Bryant Thomas, DEQ-NRO
Mr. Ross Metersky, Panda Power
Barbara A. Notar, Esq., Town Attorney

Frasier, Douglas (DEQ)

From: Amy Wyks [AWyks@LEESBURGVA.GOV]
Sent: Thursday, March 26, 2015 9:32 AM
To: Frasier, Douglas (DEQ)
Cc: Brian Bailey; Barbara Notar
Subject: RE: Part III - Additional language request

Good morning Doug,

Thanks for the draft with the Part II.B.3 language.

The Town accepts the language as written.

We appreciate your continued commitment to our permit.

Have a great day.

Amy

From: Frasier, Douglas (DEQ) [<mailto:Douglas.Frasier@deq.virginia.gov>]
Sent: Wednesday, March 25, 2015 2:33 PM
To: Amy Wyks
Cc: Brian Bailey
Subject: Part III - Additional language request

Amy,

Please refer to the attached. An introductory sentence was added under Part III.B.3. Please let me know if the Town concurs.

On another note, a response should be going out to Fairfax Water concerning their comments soon; you will be copied on that correspondence.

Best regards,

Douglas Frasier

VPDES Permit Writer, Senior II
Certified Nutrient Management Planner
Regional Toxics Management Program Coordinator
Department of Environmental Quality
Northern Regional Office
13901 Crown Court, Woodbridge, VA 22193
Phone: 703-583-3873
Fax: 703-583-3821
Douglas.Frasier@deq.virginia.gov

Frasier, Douglas (DEQ)

From: Frasier, Douglas (DEQ)
Sent: Friday, March 27, 2015 3:10 PM
To: 'cmurray@fairfaxwater.org'
Cc: Kudlas, Scott (DEQ); McGurk, Brian (DEQ); 'Amy Wyks'; Brian Bailey
Subject: DEQ response to comments - Leesburg
Attachments: VA0092282 DEQ Response to Fairfax Water Comments Mar 2015.pdf

Mr. Murray,

Please refer to the attached concerning comments received on 25 February 2015 regarding the Town of Leesburg draft permit.

The Public Notice is anticipated to publish 8 April 2015 to begin the 30 day comment period.

If you should have any questions or would like to discuss in more detail, please do not hesitate.

Best regards,

Douglas Frasier

VPDES Permit Writer, Senior II
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Regional Toxics Management Program Coordinator
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COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

Molly Joseph Ward
Secretary of Natural Resources

13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

David K. Paylor
Director

Thomas A. Faha
Regional Director

27 March 2015

Via email: cmurray@fairfaxwater.org

Charles M. Murray
General Manager
Fairfax Water
8570 Executive Park Avenue
Fairfax, VA 22031

Re: Fairfax Water comments concerning the Draft permit
Leesburg Water Pollution Control Facility
VA0092282

Dear Mr. Murray,

DEQ staff received the aforementioned on 25 February 2015 via email concerning the Town of Leesburg draft discharge permit. Specifically, comments pertained to Part III (Reclamation and Reuse) of the draft permit. Below, you will find your comments followed by DEQ staff's response.

Fairfax Water Comment:

Assurances of Flow Restrictions: We would like to see assurances in Part III.B.3 that the rules governing the diversion of treated effluent will be in place no later than 2020, with no opportunity to delay or defer these restrictions in the future and regardless of the status of the Town's next permit cycle.

DEQ Response:

The permit will include a specific date in which the flow restrictions will commence, even in the event the permit is administratively continued beyond the expiration date. This date will be based upon the effective date of this permit plus 5 years (i.e. one permit term). The permit is an enforceable document and does not allow for the opportunity to delay or defer these restrictions.

Fairfax Water Comment:

Flow restrictions need to be calculated on a daily basis: While the draft permit uses a 7-day rolling average flow to calculate the need for flow restrictions, the flow restrictions in Part III.B.3 need to utilize daily flows (24-hour average). This would be consistent with the time step in ICPRB's PRISM model and with the flow recommendations for the Potomac River developed by the Maryland DNR (1981).

DEQ Response:

During initial discussions concerning reuse conditions, staff from the Town of Leesburg, Green Energy Partners (GEP), DEQ and ICPRB realized that utilizing 24-hour average daily flows to ascertain if flow restrictions were necessary produced 'on/off' scenarios. For example, during dry periods of non-drought years, daily average flows might dip below a threshold for one day, then rise above the threshold before falling again for a brief period. This kind of scenario would prohibit GEP from being able to operate the proposed power plant. Therefore, a moving 7-day average methodology was developed which eliminates the 'on/off' situations, allowing for a more reliable source of cooling water while also protecting the beneficial use. Subsequent PRISM simulations by ICPRB demonstrated that periods during which the GEP project might affect CO-OP

water supply storage did not include such short-term 'on/off' dry periods during years with relatively normal climatic conditions, but might include longer periods of one or more weeks during relatively severe drought periods. DEQ staff therefore concluded that a threshold based upon a moving 7-day average provides appropriate protection and reliability of the water supply for Fairfax Water and other Co-Operative water utilities.

Fairfax Water Comment:

Coordination with Co-Op: Part III.B.3.c. allows the Town to submit a plan to request additional diversion of reuse water. We respectfully request that any consideration submitted by the Town to DEQ be coordinated with both the Co-Op water utilities and ICPRB Co-Op staff, with opportunity for comment and review.

DEQ Response:

It is customary practice for DEQ, and appropriate, to seek the input from affected stakeholders on matters such as a possible diversion plan allowed by the permit. Once received, the request for any additional reuse water diversion will be evaluated by appropriate DEQ staff, and will be forwarded to ICPRB staff and Co-Operative water utilities for review and comment. Sufficient time will be allotted for review and comment. DEQ staff will then consider any comments/suggestions prior to final review of the plan. This will be memorialized in Section 23 of the Fact Sheet.

Fairfax Water Comment:

Reclaimed Water Management Plan (RWMP): We request that the Reclaimed Water Management Plan (RWMP) referenced in Part III.B.1 be made available for review and comment to Fairfax Water and other interested parties, within 30-days of its submission.

DEQ Response:

The above response also relates to the Reclaimed Water Management Plan.

Fairfax Water Comment:

Include Maryland withdrawals and discharges: Section 12 of the Fact Sheet for this permit should include the discharges, intakes and monitoring stations in the Potomac River emanating from the Maryland shoreline.

DEQ Response:

DEQ staff requested this information from the appropriate state of Maryland agencies during the 2008 issuance and in the beginning of this reissuance, with no response. Staff will make another attempt at obtaining this information during the public comment period. The additional information would not alter the permit conditions and requirements since it is only for informational purposes within the Fact Sheet.

DEQ and ICPRB staff worked diligently to balance this important power plant/reuse project and protect downstream uses that may have been impacted. It is staff's anticipation is that the draft permit conditions and requirements and the above responses have adequately addressed your concerns.

Please contact Douglas Frasier at 703-583-3873 or via email at Douglas.Frasier@deq.virginia.gov should you have any specific questions to discuss.

Respectfully,



Bryant Thomas
Regional Water Permits & Planning Manager

cc: Scott Kudlas, DEQ via Scott.Kudlas@deq.virginia.gov
Brian McGurk, DEQ via Brian.McGurk@deq.virginia.gov
Amy Wyks, Town of Leesburg via AWyks@leesburgva.gov
Brian Bailey, Town of Leesburg via BBailey@leesburgva.gov

Frasier, Douglas (DEQ)

From: Cherie Schultz [cschultz@icprb.org]
Sent: Monday, March 30, 2015 1:33 PM
To: Frasier, Douglas (DEQ)
Cc: Thomas, Bryant (DEQ); Carlton Haywood; Sarah Ahmed; McGurk, Brian (DEQ); Kudlas, Scott (DEQ)
Subject: Draft permit for Leesburg

Doug,

We have reviewed the proposed draft permit for the Town of Leesburg's Water Pollution Control Facility and are concerned that a 7-day average flow is used to determine when restrictions on diversions should be imposed. One-day flows are fundamental to all aspects of CO-OP operations, including the environmental flow target, reservoir release decisions, and WMA demands. The model used by ICPRB to evaluate the impact of the proposed diversion on the Washington metropolitan area (WMA) water supply system based its decisions on one-day average flows, and those modeling results should not be used to set 7-day average flow levels for restrictions on diversions without further analysis.

Our understanding is that the planned recipient of the diversion, Green Energy Partners (GEP), argued that the 7-day flow average was necessary because occasional short-term flow restrictions would prevent them from being able to operate their proposed plant effectively. We don't believe that this assertion is valid because GEP could continue its operations during low flows without interruption as long as mitigating discharges were made elsewhere. We are aware of several parties that would be willing to make arrangements with GEP to mitigate its consumptive use on such days.

ICPRB is committed to helping the region extend the WMA's current cooperative system-based management of water resources to upstream users, and an arrangement between GEP and another basin user willing to make available storage for the purpose of mitigating consumptive use would be consistent with this goal. Carlton and I would appreciate the opportunity to come and discuss with you our current efforts related to a broader regional cooperative system and the role that water reuse might play in such a system.

Best regards,

Cherie

--

Cherie L. Schultz, Ph.D
Director for CO-OP Operations
Interstate Commission on the Potomac River Basin
30 West Gude Drive, Suite 450, Rockville, MD 20850
telephone: 301-274-8120
e-mail: cschultz@icprb.org

Frasier, Douglas (DEQ)

From: Amy Wyks [AWyks@LEESBURGVA.GOV]
Sent: Wednesday, April 01, 2015 9:55 AM
To: Frasier, Douglas (DEQ)
Subject: RE: Draft permit for Leesburg

Good morning Doug,

We appreciate your forwarding ICPRB's comments.

As you know, ICPRB has been involved since the sensitivity analysis and the seven day average is not a new addition to the Town's draft permit. The Town and Panda have concern that while 1 day versus 7 day average may not impact ICPRB, the difference could have a significant impact on our reuse project which is so small compared to the Potomac River flows.

Thank you for your continued commitment and attention to our permit.

Should you need anything from the Town, please do not hesitate to contact us.

Have a great day, Amy

From: Frasier, Douglas (DEQ) [<mailto:Douglas.Frasier@deq.virginia.gov>]
Sent: Tuesday, March 31, 2015 11:29 AM
To: Amy Wyks
Subject: FW: Draft permit for Leesburg

Amy,

Please see the comment from ICPRB below. We have been discussing this internally this morning and will continue to have discussions with staff in Richmond (Scott Kudlas).

I will try to keep you up to date as we work through their comment.

Please feel free to contact me if you care to discuss.

Best regards,

Douglas Frasier

VPDES Permit Writer, Senior II
Certified Nutrient Management Planner
Regional Toxics Management Program Coordinator
Department of Environmental Quality
Northern Regional Office
13901 Crown Court, Woodbridge, VA 22193
Phone: 703-583-3873
Fax: 703-583-3821
Douglas.Frasier@deq.virginia.gov

From: Cherie Schultz [<mailto:cschultz@icprb.org>]
Sent: Monday, March 30, 2015 1:33 PM
To: Frasier, Douglas (DEQ)

Cc: Thomas, Bryant (DEQ); Carlton Haywood; Sarah Ahmed; McGurk, Brian (DEQ); Kudlas, Scott (DEQ)
Subject: Draft permit for Leesburg

Doug,

We have reviewed the proposed draft permit for the Town of Leesburg's Water Pollution Control Facility and are concerned that a 7-day average flow is used to determine when restrictions on diversions should be imposed. One-day flows are fundamental to all aspects of CO-OP operations, including the environmental flow target, reservoir release decisions, and WMA demands. The model used by ICPRB to evaluate the impact of the proposed diversion on the Washington metropolitan area (WMA) water supply system based its decisions on one-day average flows, and those modeling results should not be used to set 7-day average flow levels for restrictions on diversions without further analysis.

Our understanding is that the planned recipient of the diversion, Green Energy Partners (GEP), argued that the 7-day flow average was necessary because occasional short-term flow restrictions would prevent them from being able to operate their proposed plant effectively. We don't believe that this assertion is valid because GEP could continue its operations during low flows without interruption as long as mitigating discharges were made elsewhere. We are aware of several parties that would be willing to make arrangements with GEP to mitigate its consumptive use on such days.

ICPRB is committed to helping the region extend the WMA's current cooperative system-based management of water resources to upstream users, and an arrangement between GEP and another basin user willing to make available storage for the purpose of mitigating consumptive use would be consistent with this goal. Carlton and I would appreciate the opportunity to come and discuss with you our current efforts related to a broader regional cooperative system and the role that water reuse might play in such a system.

Best regards,

Cherie

--

Cherie L. Schultz, Ph.D
Director for CO-OP Operations
Interstate Commission on the Potomac River Basin
30 West Gude Drive, Suite 450, Rockville, MD 20850
telephone: 301-274-8120
e-mail: cschultz@icprb.org

Frasier, Douglas (DEQ)

From: Cherie Schultz [cschultz@icprb.org]
Sent: Monday, April 06, 2015 5:13 PM
To: McGurk, Brian (DEQ)
Cc: Frasier, Douglas (DEQ); Kudlas, Scott (DEQ)
Subject: Re: revised language

Hi Brian - sorry it took me a while to track down this file - it had been zipped up and stashed away.

So my understanding is that DEQ did the comparison that you described, and determined that using the 7-day flow average would probably give results similar to results obtained using the one-day flow. Then I'd be comfortable with this change to the Factsheet. I agree that including the qualifying language seems most appropriate.

On Mon, Apr 6, 2015 at 2:06 PM, McGurk, Brian (DEQ) <Brian.McGurk@deq.virginia.gov> wrote:

Cherie

The statement was derived from a review of the September simulation results (excel file "Leesburg-GreenEnergy Analysis - CS review Sep 8 - season678.xlsx") that included comparing daily POR flow with the corresponding 7-day average flows as well as the total simulated Water Supply storage values for the days during which releases were simulated. The comparison was done for the tabs listing results for the 2018-1400 cfs threshold, and the seasonal threshold tab. I was not suggesting that additional simulations should be done later this month. I was instead suggesting some qualifying language in the Fact Sheet.

Upon rereading the sentence, I would agree that perhaps the sentence should state "...analysis of the simulation results suggested that there may be no change ...".

What do you think?

Brian

From: Cherie Schultz [cschultz@icprb.org]
Sent: Monday, April 06, 2015 1:48 PM
To: McGurk, Brian (DEQ)
Cc: Frasier, Douglas (DEQ); Kudlas, Scott (DEQ)
Subject: Re: revised language

Brian,

My only question concerns the sentence, "However, analysis of the simulation results indicated that there would be no change in the project's effect upon simulated water-supply storage and release volumes

if diversions were cut off based on seven-day average river flows. " Has DEQ done this analysis, or is this something you were thinking that we would do some time this month?

Cherie

On Mon, Apr 6, 2015 at 12:44 PM, McGurk, Brian (DEQ) <Brian.McGurk@deq.virginia.gov> wrote:

Cherie

Can you take a look at the paragraph in red text in the attached that Doug and I have added to the Fact Sheet and let me know if it might be what you had in mind?

Thanks and let me know if you have any questions.

Brian

Brian McGurk

DEQ Office of Water Supply

brian.mcgurk@deq.virginia.gov

[804-698-4180](tel:804-698-4180)

--

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telephone: 301-274-8120
e-mail: cschultz@icprb.org

Frasier, Douglas (DEQ)

From: Frasier, Douglas (DEQ)
Sent: Wednesday, April 08, 2015 4:23 PM
To: 'Cherie Schultz'
Cc: Thomas, Bryant (DEQ); Carlton Haywood; Sarah Ahmed; McGurk, Brian (DEQ); Kudlas, Scott (DEQ); 'Amy Wyks'; Brian Bailey; 'Jordan Dimoff'; Faha, Thomas (DEQ)
Subject: RE: Draft permit for Leesburg

Cherie,

As discussed and for the file, the following language will be added to Section 23 of the Fact Sheet explaining how the 7-day average flow was ascertained, utilizing ICPRB modeling results, during the drafting of this permit:

It should be noted that the modeling simulations conducted by ICPRB staff were based on 24-hour average daily river flows. The results from these daily simulations with flow-cutoff thresholds indicated that there would be times when the Town's diversion to the power plant would be prohibited for short periods, producing 'on/off' scenarios. For example, during some summer months of non-drought years, daily average flows might dip below a diversion-cutoff threshold for one day; then rise above the threshold before falling below it again for a brief period. Diversion cutoffs based on daily fluctuations around the thresholds would prohibit GEP from being able to effectively operate the proposed power plant. However, analysis of the simulation results suggested that there may be no change in the project's effect upon simulated water-supply storage and release volumes if diversions were cut off based on seven-day average river flows. Consequently, DEQ staff concluded that, even though the model simulations do not directly support diversion cutoff thresholds based on a moving seven-day average flow, the use of such an average would adequately protect the CO-OP water supply storage.

DEQ staff thanks you again for your time and effort during this endeavor and the comments provided below.

Best regards,

Douglas Frasier

VPDES Permit Writer, Senior II
Certified Nutrient Management Planner
Regional Toxics Management Program Coordinator
Department of Environmental Quality
Northern Regional Office
13901 Crown Court, Woodbridge, VA 22193
Phone: 703-583-3873
Fax: 703-583-3821

Douglas.Frasier@deq.virginia.gov

From: Cherie Schultz [<mailto:cschultz@icprb.org>]
Sent: Monday, March 30, 2015 1:33 PM
To: Frasier, Douglas (DEQ)
Cc: Thomas, Bryant (DEQ); Carlton Haywood; Sarah Ahmed; McGurk, Brian (DEQ); Kudlas, Scott (DEQ)
Subject: Draft permit for Leesburg

Doug,

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Brian McGurk

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Sent: Wednesday, April 08, 2015 4:13 PM
To: Frasier, Douglas (DEQ)
Cc: McGurk, Brian (DEQ); Kudlas, Scott (DEQ)
Subject: Re: revised language

Doug - this looks fine to me.

On Tue, Apr 7, 2015 at 8:53 AM, Frasier, Douglas (DEQ) <Douglas.Frasier@deq.virginia.gov> wrote:

I've revised the language as suggested; please, as your time allows, review to ensure that we are all in agreement with the summary.

Thanks again! Doug

From: Cherie Schultz [mailto:cschultz@icprb.org]
Sent: Monday, April 06, 2015 5:13 PM

To: McGurk, Brian (DEQ)
Cc: Frasier, Douglas (DEQ); Kudlas, Scott (DEQ)
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Brian